

THE DICTIONARY OF
GRAPHIC ARTS TERMS

HUGO JAHN

United Typothetae of America

LOUIS E. GAUS

From the collected books of Louis and Maureen Gaus. ∞



ANCIENT NAMES FOR COMMON TYPE SIZES, AND THEIR MODERN POINT SYSTEM EQUIVALENTS.

POINTS	ANCIENT NAME	POINTS	ANCIENT NAME
3	Excelsior	18	{ Great Primer
3 ½	Brilliant		{ Three-line Nonpareil
4	Semi-Brevier	20	Paragon
4 ½	Diamond	22	Two line Small Pica
5	Pearl	24	Two-line Pica
5 ½	Agate	28	Two-line English
6	Nonpareil	30	Five-line Nonpareil
7	Minion	32	{ Two-line Columbian
8	Brevier		{ Four-line Brevier
9	Bourgeois	36	{ Two-line Great Primer
10	Long Primer		{ Three-line Pica
11	Small Pica	40	{ Two-line Paragon
12	Pica		{ Double Paragon
14	English	44	Meridian
16	{ Columbian	48	{ Cannon
	{ Two-line Brevier		{ Four-line Pica



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THE DICTIONARY OF GRAPHIC ARTS TERMS

A BOOK *of* TECHNICAL WORDS
and PHRASES USED IN THE PRINT-
ING *and* ALLIED INDUSTRIES

Compiled by

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PREFACE

This book is the largest unit (in first edition) of the Typographic Technical Series for Apprentices, and while it is intended primarily as a reference book for those who are learning the Printing and Allied Trades, and all those who may aspire to handle the printing press efficiently, it may afford interesting reading matter for any person directly or indirectly connected with the Printing, Engraving, Lithographing, Electrotyping and Stereotyping, Bookbinding, Paper-making, and Ink-making industries. All graphic arts workers will find it an invaluable book of printing knowledge.

In compiling a dictionary of graphic arts terms, a great many words and definitions must be included which appear in the unabridged general dictionaries, because these words have a special application in the graphic arts. For the sake of brevity, only the technical definition of the words is given, even though in general use the words may have other meanings. In addition to the purely technical definition of words and phrases, a great deal of historical information of a useful and interesting nature has been embodied in the volume.

The source of supply of any book of knowledge is necessarily contained, at least to a great extent, in already existing books. The principal source-bases of the Dictionary of Graphic Arts Terms are A. A. Stewart's "Printer's Dictionary," published in 1912, and the volumes of the Typographic Technical Series for Apprentices. The older dictionaries of graphic arts terms have been consulted primarily for their historical information. Of the newer books, R. T. Porte's "Dictionary of Printing Terms," which appeared in 1924, has been freely consulted; also the "Handbook of Quality-Standard Papers," published by the American Writing Paper Company, and the Buckeye Book of Direct Advertising. All the important trade magazines, like the *Inland Printer*, *Printed Salesmanship*, *American Printer*, *Printing*, etc., have been perused in search of information. Books pertaining to printing, engraving, lithography, bookbinding, electrotyping, stereotyping, copperplate engraving, photo-engraving, paper-making, ink manufacture, photography, art, etc., have furnished information for many of the descriptions in the Dictionary.

Many of the terms and phrases appearing in the Dictionary of Graphic Arts Terms are taken direct from the particular trade in which they are used, and have never before been published. Some of the definitions are very brief, but all important subjects are treated exhaustively.

Material for several of the special articles printed in the Dictionary was furnished by the departments of education or publicity of the business concerns or establishments whose machinery, tools, or supplies are therein described.

In the graphic arts industries there are continuous changes; new processes, tools, machinery, and type faces appear every year, and consequently new technical and trade names must result. A graphic arts dictionary is, therefore, never entirely up to date. Only a limited number of copies of this Dictionary have been printed. In the next edition it is the intention to revise the present material (correct inevitable mistakes), and then include additional descriptions and terms.

The compiler desires to express his thanks for the cooperation so generously extended by the graphic arts industry in general in the collection of the manuscript for this book.

Especial appreciation for suggestions and help is due the following persons: Norman T. A. Munder, of Baltimore; Henry L. Bullen, curator of the Typographic Museum of the American Type Founders Company; Harry L. Gage, of the Bartlett-Orr Press, New York; E. E. Sheldon, of the Lakeside Press, Chicago, Ill.; and Dr. Frederick W. Hamilton, of Boston, Mass.

HUGO JAHN

THE DICTIONARY OF GRAPHIC ARTS TERMS

Abecederium (pl. **Abecederia**). The elementary Latin grammars in use before the invention of typography. They contained abstracts of the works of an old Latin grammarian named Donatus. See *Donatus*.

Abbreviation. A shortened word form. An abbreviation may be made either by omitting certain portions from the interior or by cutting off a part of a word. A contraction is made by omitting certain letters or syllables and bringing together the first and last letters or elements. A contraction is an abbreviation, but an abbreviation is not necessarily a contraction. *Dr.* and *mdse.* are contractions and also abbreviations. *Am.* for American is an abbreviation but not a contraction. Short forms of words and phrases are common in all written and printed language, and their use is constantly a perplexing matter for compositors and proofreaders, owing to the prevailing lack of uniformity in shortening many words. The general dictionaries have lists which young printers should study carefully and frequently.

Absorbency, Absorption. The capacity of paper to take in or retain ink or other liquid.

Accent. A mark over, under, or through a letter to show the position, nature, or stress of the sound it represents. For most roman and italic body type, and for many job and display fonts, accent marks are cast on the letter. Separate accents, floating accents, or piece accents, are made for use with any large or heavy-face types. The common accents in the English language are: ' acute, ` grave, " dieresis, ^ circumflex, ~ long, ˇ short; used like this: é è ü ê ã ě. The accent mark ' is also used for other purposes, to denote minutes, seconds (2' 6" 2 min. 6 sec.), feet, inches (5' 10" 5 ft. 10 in.) etc. See *Cedilla*, *Tilde*, etc.

Account Mark. A sign used in commercial work, $\%$.

Acid Blast. A method of etching halftone and line plates by forcing sprays of acid on the face of the plate, instead of simply immersing in the liquid. Greater depth of etching and sharper lines are obtained in this manner.

Acid-proof Paper. Paper that has been specially dyed with colors that are not affected by acids or their fumes.

Acography. A method of producing relief surfaces on metal or stone by means of chalk tracery, from which an electrotype or stereotype plate can be made.

Actinometer. An instrument for measuring the actinic effects of the rays of light; useful in testing the permanency of pigments. The instrument for measuring the direct heating power of the sun's rays is also called *actinometer*.

• **Ad.** Colloquial abbreviation of advertisement. *Pl.* ads.

Adams Press. A printing press invented by Isaac Adams of Boston about 1830, and subsequently improved by him and others. It was a development of the principle of the old hand press operated by mechanical power. It had a stationary platen, and a bed whose only movement was up and down—up to the platen to give the impression, and down to allow the inking rollers to pass over the form. A frisket carried the sheet between the platen and the form, and after the impression, the sheet was carried out and deposited on a receiving board by means of a frame called a fly. The press also had an ink fountain and ink-distributing device. Printing machines of this kind were made up to 1875, and they were in common use for book printing in this country during the last century, until superseded by the cylinder press.

• **Ad Copy.** Copy or text for an advertisement; also a combination of copy and layout. See *Layout*.

• **Add.** A designation used on newspapers for additional matter to be used with matter already in type or sent to composing room. If there are more than one addition, it is designated "first add," "second add," etc., and a key-word or letter is usually given from the main or subheading of the story for identification.

• **Addendum.** In printing, matter to be added to a book, usually essential to its completeness, but shorter than a supplement. Frequently used to designate material added to supply omissions of composition.

Addressograph. A machine and a system for arranging in order and printing names and addresses on envelopes, wrappers, and other matter for the mails. The process includes a machine called a "graphotype" which embosses the name and address in raised letters on a strip of zinc. This name-plate is placed in a metal frame with slots in the top edges which hold movable metal tabs for classifying, indexing, etc. The frame has a space for a card slip showing the printed name and address. The mailing list thus prepared, with each name and address in a separate holder, is arranged in narrow drawers in a cabinet, like an ordinary card-index system. Another machine, the real addressograph, does the printing on the envelope or wrapper. This apparatus contains an upright channel, or magazine, into which the name-plates are inserted, and from the bottom of this channel the plates are moved automatically one at a time to the printing point. The envelope or wrapper, laid face down at the printing point where the name-plate appears, is pressed down from above by an impression arm, thus receiving the print. As each name-plate is used, the mechanism pushes it along its channel and another comes into place for the next envelope. There is an automatic inking-pad, or the inking may be done by a ribbon, as on a typewriter. The machine may be used to print in consecutive order, in duplicate, or for any number of impres-

sions from one plate. The addressing machine is made in several styles, the smaller and simpler ones being operated by hand, while the more elaborate machines, designed for long mailing lists, etc., are operated by electric motors. Some machines have special auxiliary attachments for dating, numbering, etc.; for billing, and other office work.

♣ **Adman.** A compositor who sets advertisements, as on a newspaper or other publication.

Admiration Mark. Sometimes applied to the exclamation point (!) when it indicates surprise, joy, or admiration.

♣ **Advance Copies.** Copies of a printed work sent out to reviewers or others prior to regular publication.

♣ **Advertisement.** A public notice or announcement, usually printed, giving information, stating a want, fact, intention, event, etc. Technically, a paid announcement in a publication. Abbreviated ad., adv., adverst.

Advertising Rule. A thin brass rule, type-high and varying in thickness, for dividing one advertisement from another in newspapers, magazines, etc.

♣ **Ad Writer.** A person who writes advertisements; a copy writer.

♣ **Agate.** A small size of type body, between pearl and nonpareil, approximating 5½ points, measuring fourteen lines to an inch. Agate type is almost universally used for small classified ads on newspapers, but it is now little used as a body type. This size is employed to measure advertising space in newspapers and magazines. See *Type Sizes*.

♣ **Against the Grain.** Opposite to or against the direction in which the fibers lie in a sheet of paper. See *Grain of Paper*.

Agendum. A Latin word which signifies program of business to be done at a meeting; a memorandum book.

Agony Column. The column in a newspaper devoted to personal advertisements, usually referring to missing friends or relatives.

♣ **Air Brush.** An instrument used by commercial artists and others for spraying color on drawings, chiefly for designs to be reproduced by halftone process. It is operated by compressed air forced through a needlepoint charged with color, the spray of which may be regulated to produce a variety of effects.

Air-dried. A term applied to paper that has been dried rapidly while in a continuous web, and after surface sizing has been applied, by passing over revolving fans which release superheated air.

♣ **Air Hole.** A defect in any casting, as in a roller or linotype slug, caused by the presence of air bubbles in the mold.

Albert Lead-molding Process. A method of making matrices in cold lead instead of wax, for electrotyping; developed by a Dr. Albert. See *Lead-molding*.

Albertype. A process of making pictures with a gelatine-covered plate, the printing being a variety of photogravure, invented by Joseph Albert of Munich. See *Collotype*.

Albion Press. An almost obsolete hand press, giving its impression by means of levers which straighten out when the bar is pulled. (A toggle joint.)

• **Albumen Paper.** Sensitized paper used by photographers for making photographs.

Aldine Editions. Books published from 1494 to 1597 by Aldus Manutius and his family at Venice and Rome. These books were celebrated for their accuracy and the high prices which they commanded. The works of Petrarch, Boccaccio, and Dante were published by them, and they were the first to use italic letters. The emblem of the Aldi was a dolphin twined around an anchor.

Algebraic Signs. Letters, signs, and symbols used in algebra, or in the printing of works pertaining to algebra.

• **Alignment.** The exact correspondence at top or bottom of letters and characters of a font. See *Lining System*. The arrangement of type in straight lines; also the setting of lines so that the ends appear even up and down the page.

• **Alive.** A term applied to type after it has been set and until it is *dead*, or ready to be distributed. See *Live*.

• **Alkali Blue.** An organic pigment used in the manufacture of printing ink. See *Inks*.

• **Alkali-proof Paper.** Paper that has been treated to resist the action of alkali.

All-along. A method of sewing the sheets of a book together with thread.

Allen's Envelope Press. An American invention, one of the first automatic machines to be successfully applied to the rapid printing of envelopes.

• **Alley.** The floor space between two stands or cabinets, in which compositors work.

All-in. When all type available is distributed in cases.

All in Hand. When all the copy has been given out to the compositors.

Alliteration. Repetition of the same letter or sound in two or more consecutive words, as *printing produces profits*.

• **Alteration of Margins.** When a book or pamphlet of small pages has been worked off with small margins for a regular edition, and then the furniture between the pages increased to print another edition with wider margins on larger paper, and vice versa. This practice is rare now.

• **Aluminography.** The process of making and using aluminum plates for lithographic and offset printing. Also termed *Algraphy*.

Aluminotype. A printing plate made of an aluminum alloy. The process of making it is different from electrotyping and not unlike the old plaster-matrix stereotype processes. The furniture used in locking up the type form or other surface is of a height equal to the difference between the plate thickness required and type-high; that is, if the plate is to be 11-point (.153 inches) thick, the furniture is .765 inches high, so that the mold will be .153 inches (11-point) deep. Beveled rules are placed around the sides of type forms before locking in furniture, so that the plates are cast with beveled edges, reducing the amount of trimming after being cast. The form is placed on an imposing slab and a molding frame put on the top of it, so that the frame will rest evenly on the furniture. Then a composition of plaster, clay, asbestos, and other ingredients is poured on the form, which is allowed to set for about ten minutes. After the composition sets, the molding frame containing the mold is released from the form and is placed in a hot drying chamber for about forty-five minutes. This molding frame is then covered with a frame of like composition, locked in a specially constructed casting machine. The plate is now cast instantaneously by injecting aluminum alloy into the mold. The cast requires a little scrubbing to release all plaster from the face, and after sawing apart, trimming, and curving if required is ready for use. The claims for these plates are that they are harder than electrotypes, and have sharper and clearer faces because the molds are perfect and require no blackleading. The casting of the plate is done under pressure, forcing the metal to flow in every small crevice of the mold. It is not claimed that this process will give a perfect reproduction of fine-screen halftones. The metal used is an aluminum alloy that requires a temperature of 1400° F. to flow. It weighs one-fourth as much as lead. Two kinds of alloy are used—one hard for flat plates, another softer to allow the curving of a plate when cold. Owing to the toughness of the metal, the aim is to make the plate so that it will require the least amount of trimming.

Aluminum. Thin plates of this material are now used as a substitute for lithographic stones. See *Lithography*.

Aluminum Leaf. A bright leaf or foil often substituted for silver in the lettering of books.

• **American Point System.** See *Point System*.

• **Ampersand.** The old name for the character &. It is also the corrupted form of *and per se and*; also called *short and*.

Anatastic Printing. A process of printing from slightly raised metallic surfaces, reproducing from an old print a series of new impressions. The print to be reproduced is treated with a weak acid and submitted to pressure against a metal plate, fixing the design, which is then etched as in zincography.

Anchored. Said of a printing plate (original or electrotpe) held on to the base by means of solder poured through a hole from the back, or by a screw or similar device; a method used for fastening plates when there is no room for small nails or screws on the beveled margins or within the relief lines. See *Sweated-on*.

Animal-sized. Paper sized on the surface with glue or gelatine made from hides or hoofs to effect a better quality of sheet. Paper is passed through a solution of the above after it leaves the driers on the paper machine.

Annex Type Box. A brass or metal box or cup which can be attached to boxes of the type case for holding extra sorts or special characters.

Announcement. A formal printed notice of something which has occurred or which is to occur; a widely used form of printing, done in any variety of style, from a simple card to an elaborately designed, illustrated, or decorated folder or pamphlet.

Anode. A piece of copper, silver, or nickel used in the electroplating tank as the depositing metal; the positive pole by which the electric current enters the depositing solution. The negative pole of the dynamo is the mold, called the *cathode*, which receives the deposit of metal, and by which the electric current leaves the solution.

Anonymous. (*abbr.* Anon.) Without name. Applied to books or writings which do not bear the author's name. When an assumed name is used it is termed a *pseudonym*.

Antimony. One of the ingredients of type metal; a hard silver white, crystalline, metallic substance, used in chemistry and medicine, as well as in industrial arts. See *Type Metal*.

Antique. A term used in bookbinding, to describe a cover that is stamped without gilt or color; blind-stamping or blind-tooling.

Antique Finish. Describing paper with a rough surface such as was used before the invention of paper-making machinery which gives a smooth, polished finish. See *Paper*.

Antique Paper. A light bulky paper having an uncalendered surface; made of any kind of paper stock fiber, and used largely for novels, popular editions, etc.

Antique Roman. A style of type in which all parts of the letter are of nearly uniform thickness (**ANTIQUE**), made in many varieties, to resemble the printing of ancient times, when all the lines of a letter were thickened by impressing on soft damp paper. In England a variety of this face is called Egyptian, and another variety is Clarendon.

Anti-rust Paper, Anti-tarnish Paper. Paper treated for use in wrapping metal articles to prevent rusting or tarnishing; it is free from acid or alkali.

Antiquarian. A size of paper, 31 x 53.

• **Antonym.** A counterterm, or a word of opposite meaning.

• **A. P.** (a) A printer's abbreviation for *author's proof*. (b) In newspaper parlance, an abbreviation of the *Associated Press*.

• **Apostrophe.** See *Punctuation Marks*.

Appearance. In paper-making, the appeal to the senses made by a sheet of paper, with reference to its color, brilliancy or lack of it, crackle, etc.

• **Appendix.** An addition at the end of a book, containing further information; extensive notes, etc., put at the end so that they shall not occupy too much of the text page.

• **Apprentice.** A person, usually a minor, who serves another in order to learn a trade, art, or profession, especially when bound by an indenture for a specified time. A term much misused, often erroneously given to errand boys and other young helpers employed at unskilled work from week to week.

Apron. The endless belt of cloth on a ruling machine used to carry the sheets forward to the lay-boy. Also called *Traveling Apron*.

Aquarelle. A colored picture, produced by printing from a key-plate the subject or reproduction in ink, and then applying water color with brushes through stencils which are placed over the print. Different stencils are used for different colors.

Aquatint. A method of etching on copper or steel, in imitation of drawing in sepia or india ink.

Aquatone Process. A new process founded on a principle which is employed in the well-known but almost obsolete process called *Lichtdruck* in Germany, *collotype* in England, and *photo-gelatine* in this country. Aquatone is like photo-gelatine in the result which it produces and in the principle which it employs. The photo-gelatine worker, with every condition favorable, can produce a thousand 22 x 28 sheets, sufficiently uniform to be marketable, at the end of a day's run. Aquatone, on the other hand, can be made to produce collotype quality with a high degree of uniformity, on the largest size sheets which printing machinery will handle, and at the highest speed at which the press can run. The aquatone plate, is, in fact, in spite of its gelatine content, more like a piece of sole leather than it is like the gelatine coating used on a collotype plate. Gelatinous though as it is, the coating on the aquatone plate will withstand a scratch test which the average grained zinc plate of lithography will not stand, and possesses wear-resisting properties unlike those of the grain on the lithographic plate, or the dots on the halftone plate used by the type printer. The aquatone printing surface consists of reinforced gelatine fiber, the tough cotton fibers of celluloid, intermingled with the mass of gelatine in the process of manufacture in such a way as to produce

a leathery surface. The aquatone plate consists of a thin backing of aluminum on which is mounted a coating of celluloid which cushions and holds the tough mixture of celluloid and gelatine which form the printing surface. In preparing the plates, the first step is that of sensitizing. This is done by immersing the aquatone plate in a shallow pan of suitable size to hold it, and rocking it for three minutes in a special solution. At the end of three minutes of immersion the plate is lifted from the tray and placed on a whirling stove where it is permitted to rotate and dry at a temperature fixed by a heat control. This usually takes from twelve to sixteen minutes, according to the temperature and humidity of the day, but the time required for drying has no bearing whatever on the finished result. Aquatone plates can be made equally well on wet days as on dry days. The plate is now ready for exposure to the negative. This may be accomplished either from a negative in which the various parts have been stripped into position at a single exposure as in a vacuum frame; or the plate may be placed in any of the step-and-repeat machines and exposed in exactly the same way that an albumen plate is exposed, with the difference that the aquatone plate requires less exposure than that of the albumen solution plate. The aquatone plate, sensitized and made ready for exposure, may be kept, if protected from light, for many hours without suffering any damage or deterioration. The operations of taking the plate from the manufacturer's box to the time of putting it on the press normally requires approximately forty minutes. The printing is done on offset press.—Excerpts taken from *Printing*.

Arabesque. A style of ornamentation in relief, often consisting of fanciful human or animal figures combined with floral emblems. It is founded on the decorative art of the Greeks, Romans, Moors, and Arabs, but in the case of the latter two the designs lacked the animal figures. The name is sometimes inappropriately applied to embossed designs on book covers.

Arabic Numerals. The ten figures in common use, 1234567890, so called because they are supposed to have come originally from Arabia; in distinction from Roman numerals, IVXLCDM. See *Roman Numerals*.

Army Press. A printing apparatus much used during the Civil War, being adapted to the use of movable army printing outfits. It may be operated on a strong table, and consists of a bed and a small cylinder geared together, and also a tympan and frisket. When the form is inked and the sheet laid on with frisket and tympan, the impression is made by turning a crank which rolls the cylinder over the form.

Art Canvas. A covering material for books. See *Buckram*.

Artist's Proof. An original proof made before an etching or engraving is given to the public. ~~Incorrectly applied to large paper copies made later.~~

Artotype. A photo-engraved picture made by one of the gelatine processes.

• **Art Preservative of All Arts.** A poetic phrase used by certain writers and speakers to designate the art of printing; meaning that by means of printing knowledge of all other arts and sciences is preserved and increased.

• **Ascenders.** The tall letters of the lower-case alphabet, b, d, h, l, etc.

• **Asphaltum.** A viscous, dark brown, liquid mineral pitch, used in photo-mechanical engraving processes. In etching, it is used to stop out or cover certain parts of the plate in order to prevent the acid from attacking these parts.

• **Asphalt-base Oil.** One of the oils used as a vehicle in the manufacture of printing inks. See *Vehicles*, under *Printing Inks*.

• **Asterisk (or Star *).** One of the old reference marks. Also formerly used to indicate omitted letters or words. Several asterisks are sometimes used in connection with a letter for a name: B****.

Asterism. A mark used in printing to direct attention to a particular passage, represented by three asterisks arranged in the manner of an inverted pyramid: (* * *).

Atlas. (a) A volume containing a collection of maps or plates; a large, square folio, as a volume of maps. (b) A size of paper, 26 x 33 in writing, and 26 x 34 in drawing.

• **Author's Alterations** (*abbr.* A. A. s). Changes which have been made from the original copy after type has been set. Author's corrections are not only new matter added to the original copy, but all alterations made necessary by changes in style, punctuation, etc., or additions to or subtractions from the composition as set according to the original copy. A compositor is bound, with certain reservations, to follow the copy supplied. If an author makes changes afterward on proofs, these are an expense to the printer for which he may fairly make an extra charge over the original estimate, this being based upon the time spent in making the changes. Unless there is a distinct understanding between the author, publisher, and printer, charges of this kind are often a source of dispute, especially when dealing with inexperienced authors and publishers. It is sometimes difficult for persons to realize that what seems a slight change in the proof may involve the rearranging not only of the line in which the change occurs but of other lines, thereby adding to the expense of composition. It is not unusual for changes of this kind to cost as much as the original setting of the work. Much of this expense may be avoided by a careful editing of the copy before it is first set. Also called *author's corrections*.

• **Author's Proof.** A clean proof sent to the author after the compositor's errors have been corrected.

Autoglyph. A print made by a gelatine-photogravure process.

Autochrome Process. A method of color photography which reproduces natural colors on a glass plate with a single exposure. See *Lumiere Autochrome Process*.

Autograph. Written by hand of the author. An autograph letter or document may have only the signature in the author's handwriting. When written entirely in the author's handwriting it is called a *holograph*.

Autography. (a) An autographic process of printing or transferring messages. A method of transferring autographic drawings from paper to stone or other surface for the purpose of reproduction. (b) The study and deciphering of old autographic writings. The word is variously used.

Automatic Feeder. A general term applied to any of the many different mechanical sheet-feeding devices on platen and cylinder presses. See *Self-feeding*, *Dexter Feeder*, *Miller Feeder*, and other heads.

Autonym. A book or work written under the author's real name, as opposed to *pseudonym*.

Autoplate. A modern apparatus for casting stereotype plates for newspaper machines, in which all, or nearly all, operations are made automatically, the plates coming out practically ready to place on the printing cylinder.

Autotypography. A process similar to that of nature printing for producing a metal plate from drawings executed on gelatin, and from which printing is done in the same manner as from a copper plate. See *Nature Printing*.

Autopress. A high-speed typographic jobbing press having a flat bed with a reciprocating cylinder. The sheets are mechanically inserted and delivered after printing at a speed of four to five thousand an hour.

Autobox. A mechanical apparatus for making cardboard boxes. It forms the card into shape, glues the joints, and delivers the boxes set up.

Auxiliary Print. See *Patent Outside*.

Ayr-stone, Water-of-Ayr, or Snake Stone is used in lithography in large blocks to give the final glass-like polish to the stones before transferring, and in small slips or pencils to clean or polish away spots and any superfluous work, when preparing stones for printing, and also to give a fresh surface to any small parts of the stone for alteration purposes.

Azure. In the paper-making industry, azure is sometimes referred to as including the class of laids and woves irrespective of their color.

Azure-laid. Said of certain writing papers in a shade of characteristic light blue.

Azure-wove. A wove writing, the characteristics of which, except for the laid mark, are similar to *azure-laid*.

Auramine. One of the dyes used in making printing inks. See *Inks*.

Auramine Yellow. One of the organic pigments used in the manufacture of printing inks. See *Inks*.

Backing. In bookbinding, the operations which make the back of the book ready to set into the cover.

Backing-up. (a) At press, printing the second side of the sheets. (b) In electrotyping, the process of filling in the thin copper shell with metal, in order to give the solid back.

Bad Copy. Manuscript or any other material which is to be set in type, but is difficult to read. *Good copy* is that which can be easily read.

Bail. The metal band hinged on the edge of the platen on a job press, one at the upper and another on the lower edges, serving to hold the sheets of the tympan in place; sometimes called the tympan clamp.

Balance. In design or typography, the pleasing arrangement of masses. Balance is equilibrium, and the eye finds repose at the center of equilibrium. The critical observer measures the attraction of lines and masses of type, ornaments, or illustrations, arranged within a given space or a page, with his eye, and when parts exerting different forces of attraction, either in one direction or another, are given the same feeling of repose as is found in a page or design that is exactly equal in harmony shape, symmetry, and proportion, we call the typography well-balanced.

Ball. See *Ink Ball*.

Bands. The cords on which the sheets of a bound volume are sewed. Sometimes the bands show on the back of the book, but they are usually sunk into the back by sewing grooves across the folds of the collected signatures.

Bank. Originally a table having a sloping top upon which the pressman placed his paper; in common use when all printing was done on hand presses. The sloping top held the white paper, and as the sheets were printed they were laid on the other part of the bank, which was level—the combination being called bank-and-horse. The term bank is now applied to a stand or high bench made to hold composed type, leads, etc., in the composing rooms for galley-matter, etc. See *Dump*.

Bank Heading. A displayed newspaper heading made up of two or more sections, usually set up in different sizes or kinds of type. In

each newspaper composing room there are special rules about these headings, each style used being given a number, or brief designation, so that the copy may be clearly marked and all compositors understand at a glance the style of heading wanted.

Bar. On a hand press, the long handle which is pulled over to give the impression.

Barber-dried. Dried by means of the Barber-driers. The moist paper in the web is passed, after tub-sizing, over rolls and dried by hot air.

Baronial. Noting a class of certain sizes of envelopes and folded writing papers for social and personal messages, differing in shape from ordinary business sizes. The envelopes range from $3\frac{5}{8}$ x $4\frac{11}{16}$ inches (billet) to 5 x 6 inches. Probably so called because these sizes were first used by the nobility.

Barge. An English trade name for a small tray with six or more divisions, to hold an assortment of spaces; such as may be used for correcting on the stone or the press. A space barge may be merely a shallow box of paper or card.

Basis Weight. The weight given to a sheet of paper in terms of the weight of a ream of that paper in the size represented by its class. The sizes of different classes of papers on which basis weights are dependent are as follows:

Book.....25	x38	500	Blotting.....19x24....500
Bristol.....22	$\frac{1}{2}$ x28	$\frac{1}{2}$500	Tissue.....24x36....480
Cover.....20	x26	500	News.....24x36....500
Writing.....17	x22	500	Wrapping...24x36....480

Bastard Titles. The brief title preceding the main or formal title of a book; now called the half-title.

Bastard Types. Those with faces smaller or larger than is commonly made on the body, as a 7-point face on a 6-point body, giving the effect of compactness, or 8-point face on a 10-point body, giving an open effect.

Base. A support for a printing plate. See *Block*.

Baumé Hydrometer. A scale for measuring the density of liquids. There are two, one of which is used with liquids heavier than water, sinks to 0 degrees in pure water, and 15 degrees in a 15 per cent salt solution; the other for liquids lighter than water, sinks to 0 degrees in a 10 per cent salt solution, and to 10 degrees in pure water. The first-named is employed in the photo-engraving industry.

Beard (of a type). The beveled space below the face.

Bearers. (a) Steel ledges on each side of the bed of a cylinder press, upon which the ends of the cylinder move while making the impression. These ledges are type-high and serve the purpose of equal-

izing the motion of the printing cylinder over the form. The corresponding parts of the cylinder which rest on these bearers are termed cylinder bearers. (b) There are also bearers on the sides of the bed of platen presses, forming a track upon which the ends of the inking rollers move while inking the form. (c) Roller bearers made of strips of metal or wood are often placed inside the ends of chases for platen press forms. (d) The guard-lines placed around and in blank parts of pages to be molded for electrotyping, stereotyping, or similar treatment. Generally, any strong flat surface which serves to bear off excessive impression from an adjoining surface or to steady the motion of unequally moving parts. See *Roller Bearers* and *Guard-lines*.

Beating. (a) The ancient custom of putting ink on type by means of inking balls. (b) In bookbinding, to cause the folded sheets to lie flat and solid by striking the folded edge with a beating hammer.

Bed. The flat part of a press upon which the printing form is placed.

Bed-and-Platen Press. That style of press which gives the impression from a flat surface—the hand press, Adams press, and nearly all small job presses; distinctive from the cylinder machine.

Begin Even. When a compositor has a portion of copy which ends in the middle of a paragraph he must end his type even at the end of a line; the compositor having the next part must begin even, without indentation, at the beginning of a line.

Bellows. In the composing room, used for blowing out dusty cases, etc. An air pump is often used for this purpose. Vacuum or suction cleaners, having a screened nozzle, are more hygienic than the old-fashioned blowers for removing dirt from cases and cabinets.

Ben Day Process. A mechanical method of producing a shaded background on a line plate. The shading or tinting may be done in a variety of line, grains, stipples, and other patterns and varying tones. The patterns are prepared by ruling or roughing up the surface of a transparent film, which is inked over with a roller and turned face down to cover the picture. With a smooth burnisher or a small roller this inked tint is offset on the parts of the picture wherever desired by rubbing or pressing on the back of the film. The film being transparent, the operator can see the detail of his work on the picture. This shading is done on the original copy, on the photographic negative, or on the plate before etching. The process is usually performed in photo-engraving and lithographing plants by means of a special apparatus termed the Ben Day shading machine. So named after the inventor.

Benzine. A colorless inflammable liquid obtained from petroleum by distillation; much used in printing rooms to clean ink from type forms, etc. It evaporates quickly and leaves wooden furniture and other wood material uninjured by the wetting. Because of the fire

risk, only a small quantity is allowed on the premises at one time, and this is protected in self-closing cans. Gasoline is now frequently used instead of benzine.

Beveled Rule. Rule which has the printing surface to one side, the other side being beveled or chamfered. See *Chamfered Rule*.

Beveled Sticks. Side-sticks and foot-sticks, of wood or metal, wider at one end than at the other, by the side of which wood wedges or quoins are placed to lock up forms. The introduction of mechanical quoins which lock up on parallel side-bearings have now entirely supplanted side-sticks and foot-sticks. Beveled sticks are still used to some extent for holding type matter in place on galleys.

Bible. The Bible was the first book printed with type, and it has since been the chief work of the printing press. A copy of this first edition is now one of the most highly prized books in the world, being valued at over fifty thousand dollars.

Bibliographer. A person who writes or has a wide knowledge of books generally.

Bibliography. A description of manuscripts and books, with accounts of different editions, date of printing, prices, and other information pertaining to them; a list of books on a particular subject; the science of books and bookmaking.

Bibliomania. A mania or passion for acquiring books.

Bibliophile. A lover of books.

Bible Paper. A relatively strong, thin paper, smooth enough to show a 120-line halftone well, and having more than usual opaqueness, originally used for Bibles. The genuine is made of rags, but wood pulp is now used for cheaper qualities, which are less strong.

Bible Text. The size of type called great primer (18-point) was sometimes termed Bible Text, because it was formerly much used for printing the Bible.

Biblia Pauperum. A Latin name applied to some of the early block books, meaning *poor man's Bible*. These books came into use shortly before printing from movable type was invented. They were made up mostly of crude wood-block illustrations of Bible stories to which were attached short explanatory texts. These volumes were used as a substitute for the Bible because they were less costly, and could be understood by the poor, uneducated people, who could neither read nor write.

Billet. A small size of writing paper and envelope; the paper about 6 x 8 inches, folded twice to fit into the envelope, $3\frac{1}{4}$ x $4\frac{1}{4}$ inches. See *Baronial*.

Billhead. A ruled and printed blank on which an account is rendered to a debtor. The sizes commonly used are from 6 to $8\frac{1}{2}$

inches wide and of varying lengths, the top part having the creditor's name, business, etc., with a blank for the debtor's name, and the date; below these are ruled lines or blank space for the items and prices. An invoice blank.

Bill of Fare. A menu, or a printed list of prices of food dishes served at a meal in a restaurant or cafe.

Bill of Type. A list of the proper quantities of type for each character of the font is called in Great Britain a bill of type; in the United States is a font scheme. See *Font*.

Bind. (a) To fasten together and cover the sheets of a pamphlet or book. (b) In composition, when a letter, lead, or piece of furniture is a little out of place, or too large, and does not allow the other matter to lock up square and solid.

Binder. (a) A temporary cover for periodicals and pamphlets, usually arranged so that it can be unfastened to permit the insertion of subsequent copies. (b) A bookbinder. See *Edition Binder*.

Binder's Board. A heavy board usually made of a low grade of raw materials, used for book covers to give stiffness.

Binder's Cloth. A closely woven, specially prepared material, pressed and embossed in many finishes. It is made in a variety of colors, shades, and designs, and is the most extensively used material for the binding of books. Also called *book cloth*.

Binder's Stamp. Used for stamping cloth and leather book covers. For a few impressions an extra thick copper electrotype may serve, but it will not stand up long under the heavy pressure required. A proper stamp is made of brass. Most binders have fonts of special brass type for cover titles and other lettering. See *Gold Leaf Stamping*.

Binder's Waste. A kind of paper made for cover lining or end papers in bookbinding.

Bindery. The place where the printed sheets, signatures, or magazines are collected in order to be bound into books; a bookbindery.

Bird's-eye View. A drawing or photograph having the effect of being made from an elevation, usually to show an industrial plant or group of buildings. The originals are ordinarily made as wash drawings or photographs, but are frequently reproduced in line. By this method objectionable and irrelevant surroundings may be eliminated and the perspective of the view improved.

Biron. A tool for applying ink in printing colors from wood blocks; a sort of ink brush or dauber.

Black-faced Type. See *Bold Face*.

Blackleading. In electrotyping, covering with black lead the wax surface and the face of the form which is to be molded. This is usually done with a machine.

Black-letter. A term denoting that style of letter in vogue in the early days of printing and used more or less since: (**Black Letter**). So called because of its black appearance on the page. It has many variations. The first letters cast in types were like this, but more condensed and crude in form, such as would be made with a quill or small brush. Bibliographers call the character Gothic; others call it Text, because of its early use for the text or body of the page. Modern forms commonly used in German printing are known as Fraktur and Schwabacher. Because it was used in the first printing in England, another variation is known as Caxton Black, and later forms as Old English, etc.

Blacksmith. An opprobrious epithet applied among printers to a poor workman.

Black Wrapping Paper. Black paper made impervious to light, for wrapping sensitized photographic papers, etc.

Blaew Press. A printing press operated by hand, invented by William Jansen Blaew of Amsterdam, Holland, in 1620. This press embodied some of the first notable improvements over the press used by Gutenberg and his successors. Its superiority was of so pronounced a character that it stood alone for more than 150 years before any advancement or improvement in hand-press building was made. The Blaew press had a capacity of about 150 impressions per hour.

Blank. (*a*) A sheet or card, written, printed, or ruled, with parts left vacant to be filled in later with particular items; a form of office stationery, like a receipt blank. (*b*) A common white cardboard of low-grade wood pulp with fairly smooth finish, made in several varieties; *pasted blank*, sheets of thick paper with a middle filling of similar or lower-grade stock between, pasted together to make a stiff card; *coated blank*, that which is finished with a clay coating. (*c*) A quad, slug, furniture, or other material which may be put in a printing form to leave a blank space on the sheet. (*d*) Metal blank, a piece of smooth, soft metal used for a tint-block or for engraving a letter or other design.

Blank-book Papers. Papers suitable for blank books; may be bonds, ledgers, or writings.

Blank-books. A large variety of books with blank leaves, or leaves having ruled lines and little or no printing: account books, memorandum books, ledgers, etc.

Blank Case. A wood tray like a type case, but without partitions, or with one only, for holding engravings, electros, etc. See *Case*.

Blanket. A woolen cloth or rubber sheet used on some cylinder presses as part of the covering of the cylinder; used for certain common kinds of work, to give softer impressions and reduce the amount of make-ready. See *Packing*.

Blanking. (*a*) Referring to impressions made on cloth or leather covers by a heated brass die, without ink or color. (*b*) Filling in large white spaces in printing forms, etc.

Blank Page. A page on which there is no printing. It is often necessary to make up a page of blank furniture to fill out a form which has no other pages of type.

Blank Line. A line which is filled with quads, leads, or slugs; a white line in which no letters appear.

Blank Tables. Tables in which only the headings and rules are printed, the rest of the form being left blank, to be filled in later.

Bleaching. The process of whitening the fibrous paper-making material and removing impurities, coloring matter, etc.

Bleed. When the margins of a book or pad of printed sheets have been trimmed so as to cut into the printing, they are said to bleed.

Blind Date. Letters, figures, or abbreviations sometimes put at the bottom of advertisements in newspapers to indicate how long the advertisement is to run, or on what days or editions, as a guide to the maker-up; *je2tf*—June 2, till *forbidden*; *eod*—every other day, etc.

Blind-tooling or Stamping. Impressions of finisher's tools or book dies without ink or gold leaf. Sometimes called *antique*. *Blind-embossing*, embossing without color.

Blind, Printing for the. See *Braille*.

Block. (*a*) A hardwood or metal base for electrotypes or engraved plates, usually with catches or mechanical devices for holding the plate in place during printing. (*b*) A stamp or die used on an embossing press to print book covers. (*c*) A woodcut block. (*d*) To fasten sheets of paper in blocks, pads, or tablets, by gluing the edges together on one or more sides of the block. See *Pad*.

Block Book. A book printed from carved wood blocks, in distinction from one printed with types or metal plates. Block books were common at the time of the invention of typography.

Block Letter. (*a*) A type cut from wood: (*b*) A style of letters imitating or suggesting characters cut out of wood, such as the simple forms of **letters** commonly called gothic or sanserif.

Blocking Press. A stamping press for impressing dies or blocks on book covers.

Blotter. (*a*) A sheet of blotting paper often bearing advertising matter. (*b*) A kind of blank book or pad with sheets of blotting paper between the leaves; a book for first record of transactions.

Blotting. An unsized, highly absorbent paper or card, made in many sizes and varieties. The better qualities are made from old cotton rags or linters, and the cheaper grades from soft wood pulp, sometimes with one side coated for a printing surface.

Blue Book. A publication containing names, addresses, etc., of persons in the employ of the government, or in an organization, profession, or other classification; an official or authoritative list of rules, regulations, prices, etc.

Blue-penciled. When manuscript or other copy has been badly marked up, parts cut out, and all non-essential words deleted, it is said to have been blue-penciled, because a blue pencil is generally used for editing the copy.

Blue Print Paper. A paper for sensitizing for making blue prints. Blue print paper should be of a good folding endurance and a strength to withstand handling while wet.

Board Covers. In bookbinding, a style of cover made from heavy cardboard, used for certain classes of school and other books, where an inexpensive yet fairly durable binding is required. Books that are bound in this manner often have paper instead of cloth covering or binding over the boards.

Board Paper. In bookbinding, the portion of the end papers pasted on the inside board covers.

Boards. Applied generally to many kinds of heavy cardboards. A book with stiff sides is bound in boards; covered with paper, they are *paper boards*; with cloth, *cloth boards*.

Bodkin. A slender awl, often combined with tweezers, used in some shops for correcting type, etc. Tweezers or bodkins should be used by experienced compositors because type is easily injured by their use. See *Tweezers*.

Bodoni Type. A popular modern-faced roman letter, designed and cut first by Giambatista Bodoni of Parma, Italy, and named after its originator. This is 8-point Bodoni.

Body. The size of type considered in the direction from top to bottom of letter. Type bodies are now standardized on a scale of measurement known as the point system. See *Point System*, and other headings.

Body Type. The kinds of type, mostly roman faces, used for plain composition in paragraphs or pages of one face; text type of body letter.

Bogus. (a) Copy given to compositors on daily papers to fill in waiting time; type set, though not intended for use, and paid for at the regular rates, thus keeping piece-hands at work until arrival of genuine copy. (b) The word bogus is used also to denote articles or material of inferior or counterfeit nature: *Bogus bristol*, an imitation bristol cardboard made from low-grade wood pulp. See *Bristol*. *Bogus manila*, an imitation manila paper. See *Manila*. *Bogus wrapper*, a coarse, brittle wrapping paper made from various refuse material; it is cheap, has little strength, and is used for inside wrapping, etc. See *Filler*, and *Screenings*.

Boil. To eliminate part of a story. To cut down to the least possible space is indicated by the order to *boil to the bones*, or *B. B.* This term is used by the editor, in order to give direction to the copyreader rather than to the compositors or make-up men on newspapers.

Bold-face. Type face having the lines thickened to give a blacker effect. **This is bold-face.** Words to be set in a heavy face or black-face type, may be marked in copy by wavy underlining. See *Flat-face*.

Bolt. The uncut fold of a folded book sheet.

Bond Paper. A term which was formerly applied to all-rag paper intended for government bonds, but now applied to a strong and rattly, more or less translucent paper with a hard surface, made of rag or sulphite, or both, and used largely for letterheads, for typewriter, and other purposes.

Bone Folder. A small stick of bone, about six to eight inches long, rounded on both ends and on its sides, used to fold sheets by hand. Folders are also made of ivory, steel, or wood.

Book. A number of sheets of paper stitched or bound together, whether blank, written, or printed, used for any purpose. Specifically, a bound volume of some thickness, as distinguished from a pamphlet of few leaves in paper covers.

Bookbinder. One who binds books. See *Binder*.

Bookbinding. Same as *bindery*, which see.

Bookbinding. The trade of binding books; sometimes called bibliopegy. See *Binding*.

Book Case. The cover of a cloth-bound book, before it is fastened to the book.

Book Chase. Steel chases with movable cross-bars, for the locking up of forms of book-pages. See *Chase*.

Book Clamp. A device used by bookbinders to hold books together.

Book Cloth. A stiffly sized and glazed variety of cotton or linen cloth, used for book covers; made by special processes and in many grades and patterns. See *Binder's Cloth*.

Book Font. An assortment of type, including some of the secondary characters, like small capital, dashes, braces, references, etc., sufficient to set a number of pages of a book, as distinguished from a job font or small assortment for occasional use. See *Font*.

Booklet. A little book or pamphlet. See *Standard Booklet and Folder Sizes*.

Booklearning, Booklore. Knowledge acquired from the reading and studying of books, as opposed to practical knowledge.

Bookmaker. One who designs, prepares, or makes books, either from material already published or from original matter; a compiler.

Bookman Oldstyle. The name of an oldstyle roman type. **This is a sample of Bookman Oldstyle.**

Book-mark. A bit of card, paper, ribbon, or other material to place between pages of a book to mark a place for ready reference.

Book Paper. A general term to indicate a class of papers used for books, catalogs, periodicals, and the like, as distinct from *writings*, *ledgers*, etc.

Book Press. (a) A press adapted for book printing, as distinguished from a newspaper or job press. (b) A strong machine used in binderies to press books together till they dry flat. See *Standing Press*.

Book-plate. (a) A label placed inside the cover of a book to indicate ownership. It is usually an engraved plate, in plain, ornamental, fanciful, or symbolic design. Booklovers thus label the volumes of their libraries, a practice that has been in vogue more or less for centuries and is popular at the present time. Eminent designers and engravers have made plates of this class which have much interest for bookmen and collectors. (b) Book-plate, an electrotype or other plate used in printing books. See *Ex Libris*.

Book Room. A composing room in which books are the chief work done, as distinct from a job or news room.

Book Sizes. Books are classified in a general way in sizes named according to the number of leaves into which a sheet is folded, as given in the following table. Books described as quarto (4to or 4°), octavo (8vo or 8°), etc., are understood as these numerical foldings of paper called medium (in America, 18 x 23 or 19 x 24 inches), or its equivalent in square inches in a slightly different shape. The shapes of books folded from the medium size does not in some cases give desirable proportions, and modern practice is to use other sizes of paper which give approximately the shapes noted in the right-hand column of the table. These terms may also be applied to foldings of sizes of paper other than medium; especially is this true of octavo, which is often qualified by the name of the paper size under consideration, as crown octavo, demy octavo, etc. See *Paper Sizes*. The terms had a few more definite meanings in early days, when there were fewer sizes of paper and the size of the finished book corresponded more nearly to the exact folding of the sheet. Today these terms describe the sizes of books only in a general way and their use is being discarded for the simpler and more accurate method of stating the dimensions of a page in inches (as 4 x 6 inches, or 6 x 9 inches), and the printed sheet by a number of pages (16-page, 8-page, etc.), that it contains. While the terms are usually discarded in the printer's vocabulary, they persist in the bookseller's trade and a knowledge of them is necessary and useful for every person having to do with the making of books.

Names and Usual Proportion of Book Sizes

Medium Paper	Old Shape	New Shape
Folio.....	12 x 19	12 x 18
Quarto.....	9½ x 12	9 x 12
Octavo (8vo).....	6 x 9½	6 x 9
Duodecimo.....	4¾ x 8	5⅛ x 7⅝
Sixteen-mo (16mo).....	4¾ x 6	4½ x 6¾
Eighteen-mo (18mo).....	4 x 6⅝	4 x 6
Twenty-four-mo (24mo).....	4 x 4¾	3⅝ x 5½
Thirty-two-mo (32mo).....	3 x 4¾	3⅛ x 4¾
Thirty-six-mo (36mo).....	3⅞ x 4	3 x 4½
Forty-eight-mo (48mo).....	2⅝ x 4	2½ x 3⅞

Book Work. The printing of books and pamphlets, as distinguished from commercial, job, or newspaper work.

Bookworm: (a) A worm or mite which burrows in the covers and leaves of books. (b) A person closely devoted to a study of books.

Borders. Characters cast in type, which may be adjustable in many ways, as for marginal lines, panels, and other decorative uses.

Bosses. Brass or other metal ornaments fastened on the covers of books; used on elaborately bound volumes.

Bottled Type. When it is wider at the bottom than at the top of the body, or vice versa, so that it does not readily lock up true on its feet; due to imperfect casting.

Bourgeois (*pron.* bur-jois'). The old name of a size of type equivalent to 9-point, in the American point system.

Bow-wave Finish. In paper-making, a fancy, two-toned ripple finish in stratum formation produced by a plater.

Box Boards. Cardboards of various grades, thicknesses, and colorings, used for making boxes. They have strong, coarse, fibers, with good folding quality.

Box Cover. A coated or uncoated, plain or decorative cover paper of light weight. See *Box Paper*.

Boxed, or Boxed In. Small paragraphs or lines of type enclosed with rules or borders; paneled.

Boxes. The subdivisions of a type case in which the letters are kept. The boxes of some modern type cases are strengthened by a small brass clasp over the corner of each box. A strong pin is driven through the center of the clasp and clinched on the bottom of the case to hold the partitions firmly.

Box Head. In paper ruling, a box head which consists of two horizontal and two perpendicular lines.

Box Heading. A heading at the top of a column in tabular composition, in which the columns and headings are divided by light rules and the headings also enclosed at top and bottom. See *Tabular Composition*.

Box Paper. Paper used for covering boxes, book covers, etc., made in a variety of colorings and qualities, but thin so as to be pasted on easily.

Boxwood. A wood used for engraving purposes, or woodcuts. It grows in many parts of the world, and in different varieties, the kind used for engraving being hard and of a fine close grain. These sections are thoroughly dried, after being cut across the grain about an inch in thickness, and the surface prepared to take a drawing or impression, and the engraving is done on the end of the grain. Large blocks are made by joining small pieces together solidly.

Braces. Type characters used to group or combine two or more lines or items. They are commonly in lengths of two or three ems , and also in separate parts , which may be extended to any length. They are also made of various sizes in brass,  for use in jobwork.

Bracket. (a) One of the marks of punctuation, usually in pairs [], to enclose words, phrases, figures, etc., to be separated from the text, and elsewhere for various uses; also called a crotchet. (b) An iron support to hold cases on top of a stand or cabinet. Also an arm attached to a strong board or frame to hold galleys, etc.

Braille. A system of characters used in writing and printing for the blind, invented by Louis Braille. There are several systems of characters employed for producing literature for the blind, all having for their essential feature the embossing or raising in relief of the characters on the sheet, so that the reading may be done by the sense of feeling with the finger tips. The older system which has been much employed and is still used to some extent, is a modification of the common roman letters, both capitals and small letters. The system now largely used is the Braille, which has several varieties, such as French, English, American, etc. It consists of dots raised on the surface of the paper by embossing, the arrangement of these dots forming symbols for the letters of the alphabet, as illustrated here:

a	b	c	d	e	f	g	h	i	j
•	•	••	••	••	••	••	••	••	••
	•	•	•	•	•	•	•	•	•
k	l	m	n	o	p	q	r	s	t
•	•	••	••	••	••	••	••	••	••
•	•	•	•	•	•	•	•	•	•
	•	•	•	•	•	•	•	•	•
		u	v	w	x	y	z		
		•	•	••	••	••	••		
		••	••	••	••	••	••		

The printing is done with types, cast and composed as in ordinary typesetting, and also with thin plates or sheets of brass having the characters raised on the surface. This later style of printing plate is now commonly employed, because the thin sheet of brass is more easily handled and not so bulky and cumbersome as the type form. The brass sheet also makes a very durable printing surface for the dot characters of the Braille system. The making of the printing or embossing plate is done by means of a machine in which a set of punches is used to press the dots into the back of the brass plate. The printing of the paper is done on any ordinary typographic press, without the inking apparatus, the tympan being simply a sheet of soft rubber into which each raised printing character readily makes its own counter-die. The paper used is made of good rag stock having strong fiber and a smooth but not polished surface, and is embossed while dry or slightly dampened. Under the strong impression required, the sheets naturally have a tendency to adhere to the printing plate, and for this reason the cylinder style of printing machine is preferred, because its gripper-fingers hold the sheet while the impression is being made and the sheet carried free of the embossing plate. The platen machine is adapted for proofs and hand presswork. A typewriter for writing Braille has been invented, and there is a great amount of music in Braille music notation. In some of the modern Braille systems only two rows of dots are used.

Brake. A device of wood, leather, or metal, for retarding the motion of a wheel or other moving body by pressure; applied to the driving wheels of presses and other machinery for slowing down or making a quick stop.

Brass. An alloy of copper and zinc, harder than copper, ductile, and capable of being made into thin sheets. There are many varieties, the common kinds being about 60 parts copper and 40 parts zinc, Much used for printing material.

Brasses. Brass strips used as leads in daily newspapers where hard use quickly destroys the ordinary leads.

Brass-lined Galley. A galley having a brass bottom and a wooden rim lined with brass inside.

Brass Rule. Strips of brass of a width equal to type-high, of various thicknesses and many styles of face. It is largely used in composition where plain lines are required. Owing to its greater durability, brass is preferred for running lines and other pieces which must be used often, as type metal will wear and crumble easily. Brass rules are furnished in fonts of assorted lengths and also in strips of two feet or less. Special cases are provided for holding these rules when not in use, the particular kinds of rule face depending upon the requirements

of the work done. Rule-cutting and mitering machines are also provided in most composing rooms, and it is a part of the compositor's work to trim and fit rules for any special work in hand. See *Labor-saving Rule*.

Brass Rule Case. A small case, usually quarter-size, in which fonts of labor-saving brass rule are kept. See *Case*.

Brass Rule Cutter. A small machine for cutting brass rule in required lengths; a style in common use is adapted for cutting leads and slugs as well. See *Lead and Rule Cutter*.

Brass Spaces. These are made one point thick, for justifying lines, letter-spacing, etc., in sizes from 6-point to 72-point. The 1-point spaces are brass and the $\frac{1}{2}$ -point spaces are copper, so that their color will assist in distinguishing one from the other. See *Copper Thin Spaces*.

Brass Type. For stamping book covers, leather goods, etc. Ordinary type metal cannot endure the heat and pressure which must be applied for stamping gold leaf and printing on hard, rough surfaces. Brass type is made in much the same manner as the ordinary printing type we use was made in the early days of typefounding, except that there are more difficulties in the process. On account of the temperature necessary to maintain a fluid state of the metal for casting, the molds and matrices deteriorate rapidly. Hand molds are used and, after the cast is made, the subsequent operations of finishing are hand work. As the type body comes from the mold in a rather unfinished state, it requires much filing and polishing to get it into condition for use.

Brayer. Formerly a wooden pestle of round shape, flat on one end and with a handle on the other, used to spread out ink to be taken up by the inking balls. Later it became a small hand roller used for distributing the ink before it is taken up by form rollers. *Bray*, to distribute ink on an ink slab with a brayer. *Brayer roller*, a hand roller used to distribute ink. See *Hand Roller*.

Break-line. The last line of a paragraph, where quads are required to fill out the last space. In careful composition a break-line which consists of only one short word or part of a word is not approved except in a narrow column.

Break Up. (a) To unlock a form and distribute the furniture and other materials back into their various receptacles. (b) To break up a form for colors—to separate the parts which are to print the different colors; to divide it for two or more printings.

Breaking Length. See *Tensile Strength*.

Brevier. An old-size type, nearly equal to 8-point.

Brilliant. A very small size of type, equal to half-minion or 3½-point. It is too small for practical use, although it has been used to set miniature books which are objects of curiosity. A modern method of obtaining very small lettering is to have the page composed in type of a larger size, from which a sharp, clear proof is made, with black ink on white paper; this proof is then reduced to the necessary minuteness by photography and an engraving is made by photo-mechanical process.

Break in the Copy. In composition, the term implies that there is a break or interruption in the text; something omitted to break the sense or meaning of the story.

Brief. In law-printing and legal phraseology, a typewritten or printed pamphlet or booklet, containing a lawyer's statement of a client's case in a brief or concise form; a review or summary; an epitome or compendium; a breve.

Bring Up. In making ready on press, to put underlays or overlays on the parts where the impression is defective; to bring up to an even and full pressure for printing; to give stronger color or greater distinctness.

Bristol Board. A class of fine cardboard, made in various qualities and thicknesses, usually of smooth finish, used for printing and drawing; so called because first made at Bristol, England. Genuine bristol card is distinguished by being usually of a homogenous nature, that is, of the same quality throughout, rather than the two outer surfaces of better quality than the interior. *Mill bristol*, a card made in sheets at one operation, in distinction from pasted bristol, which is made by pasting two or more sheets of paper together under strong pressure to form a card. *Filled bristol* is a lower grade of card, the two surfaces being filled with a layer of inferior stock. There is also a cheap imitation known as *bogus bristol*.

Broadside. Formerly a large sheet printed on one side only, like a hand-bill or a poster. The term is now applied to a variety of large regular and special-fold sheets, printed either on one or both sides. A broadside may also contain one job or a number of jobs.

Broad Fold. A sheet of printing paper folded so as to make pages wider than the usual shape, or of greater width than depth; an oblong fold or page, as distinguished from the upright page. *Broad twelves*, a form of twelve pages whose widths are greater than their heights. With pages of this kind, the folding of the sheet and the imposition is quite different from that with the ordinary upright pages. See *Imposition*.

Brochure (*pron.* bro-shur'). A small pamphlet having the sheets simply sewed and containing only a small number of leaves; a booklet.

Broken Matter. (a) Pi; type matter out of order. (b) Composition which has short paragraphs, headings, etc.

Broken Ream. A ream of less than 500 sheets; one on which the wrapping paper has been broken and some sheets taken out.

Bronze Inks. Inks or varnishes mixed with bronze powder. For some classes of work, these inks can be used as a substitute for bronze powder.

Bronze Powders. These are used to some extent in several kinds of printing, to give brilliant glossy effects in gold, silver, copper, green, and other colors. They are made of metals, chiefly brass, with other substances in combination, finely powdered, and applied to the printed surface as explained in the next paragraph. Bronze powders are manufactured by first melting the metals in certain proportions and molding into small ingots. These are then rolled out under heavy pressure into thin strips. After annealing and further beating into very thin sheets, like gold leaf, the sheets are cut and ground into powder.

Bronzing. Brushing a fine metallic powder over a sheet freshly printed with ink, varnish, or sizing. This metallic dust, when applied to a smooth finished surface that has been printed with sizing, gives a brilliant luster. The printing is done in the usual manner, except that sizing is used instead of ink, and while it is fresh on the paper the bronze dust is applied with a soft pad. The surplus dust is brushed off, leaving the printed part bright and clear. When other colors beside bronze are to be printed on the sheet, the bronzing usually is done first, in order to get rid of the surplus dust before another color is put on. The process is slow when large quantities are bronzed in this way. Bronzing machines have been installed where there is much of this kind of work. In these machines the sheets are fed through a narrow opening into an enclosure where they are dusted with powder, the surplus powder brushed off, and the sheets delivered clean on a receiving shelf.

Brown Print Paper. A paper used for sensitizing to produce a brown and white effect in the reproduction of drawings. Similar to blue print paper.

Brower Presses. The No. 0 Brower Ball-bearing Proof Press is designed with a spring-stop for the bed, at the end of its travel either way. A metal cabinet is provided under the bed with compartments for proof sheets, ink, benzine, cotton rags, etc. The cylinder of the press is fitted with a reel rod, ratchet, and pawl. The putting on of a new tympan is conveniently done, as the cylinder may be entirely exposed by lifting off the ink plate. One revolution of the cylinder completes the operation of taking a proof, which may be taken from both directions of the cylinder movement. The bed rides upon inch steel balls. Net weight, 335 pounds; floor space, one foot nine inches by three feet two inches. The *No. 2 Brower Press*, with a bed of 17 x 26 inches between bearers, is fitted with feed guides, a side guide and

grippers on the cylinder, and will register to a hairline. The machine weighs 1,200 pounds on the floor. The press is workable from either side; the trip is automatic and is worked by a positive, smooth, cam movement. The grippers open and close automatically; they may also be closed by hand from either side. The ink plate extends across the press, being fourteen inches wide. By a simple cam movement the front and side guides are thrown inside the cylinder while they are passing over the form. The cylinder brackets grip both the top and bottom bed frame and are secured by four bolts.

Brower Quoin. A pair of steel wedges for locking up forms; it has two parts, having teeth into which an operating key is fitted, similar to the Hempel quoin. See *Quoins*.

Buckram. A kind of thick cloth finished like linen, possessing good wearing quality, used for bookbindings.

Building Up. In electrotyping, after an impression of the form has been made in wax, putting more wax on the places which will show blank in printing, so that these parts of the plate will be deep enough to prevent smutting the paper.

Buckle. A wrinkle, crease, or twist in a sheet of paper, especially in folded signatures.

Bulk. The thickness of a book, without the cover. Some papers bulk more than others for a given number of leaves, that is, make a thicker book.

Bullock Press. A web printing machine, the first of that kind made in this country, invented by William Bullock of New York. It embodied the principles of the web perfecting machines now in use by daily newspapers and others—the cylinder upon which is placed the curved stereotype plates, the paper fed to the press from a roll, and the sheets cut apart and run into a folding-machine attachment.

Bundling. Pressing together the signatures of gathered books and tying them in bundles, to make them more compact.

Bundling Machine. A machine, operated either by hand or mechanical power, for dry-pressing, smashing, bundling, or padding. It is semi-horizontal in shape and has adjustable sliding heads or heavy metal blocks on each side, between which the signatures are placed. By means of a piston or rod one of the heads is forced against the signatures, thus compressing them.

Burr. A thin ridge or roughness left on type or metal plate by neglect in finishing.

Burin. (a) A graver; an engraver's steel tool. (b) The style or manner of the engraver's artistry, as a soft burin, or a brilliant burin.

Burnished Edges. In bookbinding, those which have been gilded or colored and polished smoothly. Burnished edges of a book are kept clean easier than rough or ordinary trimmed edges.

Burnisher. (*a*) A small tool, usually made of agate or bloodstone, with a suitable handle attached. It is used by bookbinders for burnishing and polishing the edges of books. (*b*) A smooth curved, metal tool, used in photo-mechanical processes for removing rough spots from plates and halftones.

Bursting Strength. Resistance to pressure which paper is capable of withstanding; as determined by means of a special testing instrument and computed by pounds of pressure to the square inch.

Butted. Said of slugs and rules when they are placed end to end to make a wider line or measure. Two 17½-pica linotype lines are "butted" in order to make a line 35 picas wide.

C. In the Roman numerals, C or c stands for 100. See *Roman Numerals*. As an abbreviation, the letter c is used for many words in common use, the meaning being indicated by the context, such as cent, centigrade (thermometer degrees), catcher (base ball), etc., and also as a symbol in chemistry, music notation, etc.

Cabinet. An enclosed rack for holding type cases, etc., closed in on the sides and back so as to exclude dust. Made in many different styles for printer's use; heretofore made of wood, but now also made of pressed sheet steel.

Calendar. (*a*) A system of fixing the order, length, and subdivisions of years and months. (*b*) A table or series of tables giving the days of the week, month, and year, numbered and named in their order. A table showing the order and dates of events, exercises, and observances, as a church or college calendar, court calendar, etc. Commonly a printed form showing the days of the week and the months arranged in tabular form.

Calender. In paper-making, a machine with rollers between which the sheet is passed to give a smooth finish; when the rolling has been prepared to give a glossy finish the paper is said to be supercalendered. See *S.* and *SC. Paper*.

Calendered. Paper which has been passed through a calendering machine.

Calico Printing. The process by which cotton cloth, white or unbleached, is colored so that it shows various patterns. The simplest method of printing calico or similar material is by the use of engraved blocks pressed on cloth by hand. A separate block is required for each color. Calico printing is also done by machinery, a cylinder machine being used. The patterns are engraved on the surface of copper rollers and the cloth is run through the machine in a web, as in a modern newspaper press. The colors used are like dyes, and each color is applied by an endless sheet or apron carried on rollers through a color vat and then across the surface of the printing roller. This pattern roller then prints its color on the sheet of cloth which passes between it and a large impression cylinder.

California Job Case. A type case with boxes to hold capitals, small letters, points, figures, and a few extra characters. It is a style of case extensively used for job and advertising type, giving a large area of needed storage room.

Calligraphy. The art of writing, particularly beautiful penmanship; penmanship generally.

Calligraphic Etching. A process of etching in which the design is made with a pen and ink on a clean copper plate. When dry the plate is covered with a thin varnish or etching, ground, smoked, and soaked in water to soften the ink, which can then be removed with the varnish by a gentle rubbing, leaving the design to be etched in the usual manner.

Calling Card. A small white card containing the name and sometimes the address of an individual; a visiting card.

Callitype. A method of making a plate or printing surface by means of typewriting and photo-engraving; a copy print, or plate so made.

Calotype. An old, practically obsolete, process of photography invented by W. H. Talbot; sometimes called Talbotype.

Cameo. A small carved or engraved work in relief.

Cameo Coated Paper. A dull-finished coated paper, presenting a delicate surface, for printing halftones, etc. Its advantage is in giving a non-lustrous surface, offering a rich and soft background for artistic engravings.

Campbell Press. A style of cylinder machine made by Andrew Campbell, for typographic and lithographic work; popular thirty years ago, but not made now. See *Country Press*.

Cancels. Leaves of printed book sheets containing errors which are to be cut out and replaced with corrected pages in the bindery.

Cam. A rotating or sliding piece of any precise shape, or a projection of definite shape, as on a wheel, either for imparting a desired peculiar movement to a roller moving against its edge, to a pin free to move in a groove on its face, etc., or for receiving motion from such a roller, pin, etc. Cams are used extensively to give complicated and exactly timed movements on many kinds of machines in the graphic arts industry.

Camera. An apparatus so arranged that an image can be thrown upon a sensitive surface. Practically all cameras are provided with lenses of some type, and many cameras are made extensible in order to adjust the focus. For introducing and removing the sensitive surface, plate holders are used, except in the case of a magazine camera, in which several plates can be exposed in turn without reloading, or one carrying a flexible film on rollers. For making the exposure there are

in use, in addition to the removable cap, various kinds of shutters, some of which permit an exposure as short as 1-1000 of a second, though 1-100 of a second is short enough for most purposes. There are many special forms of cameras, panoramic, enlarging, binocular, etc. In photo-mechanical engraving, the camera is an all-important article or tool. It is to the making of an engraving what the foundation is to the building of a house, and the accuracy with which the operator manipulates this piece of equipment, determines largely the quality of the finished product. The cameras used in the photo-engraving industry are of the enlarging and the copying type.

Cancelled Figures. Figures with a line across their faces, used in arithmetic work: $\cancel{1} \cancel{3} \cancel{5} \cancel{7}$.

Canon. An old size of type, about 48-point. It was so called from its early employment in the leading lines and paragraphs of the printed canons of the Church.

Canvas. Also called *duck*. A strong, heavy, cotton cloth, firmly woven. It can be procured in nearly all colors. Used for binding the cheaper grades of books.

Cap. A size of writing paper; flat cap, 14 x 17 inches; double cap, 17 x 28 inches; legal cap, small cap, or foolscap, 13 x 16 inches; crown cap, 15 x 19 inches. See *Paper Sizes*.

Capitals. In printing, the large letters of a font, as distinguished from the small letters. They are in most cases of forms different from the small letters and are derived from the characters used in ancient Roman inscriptions. The small letters, called lower-case letters by printers, are derived from various modifications of the capitals and from written or pen-made forms. Usually abbreviated to *caps*. See *Keep Up, Keep Down*.

Caps and Small Caps. Two sizes of capitals made on one size of type body, common in most forms of roman letter and often set together in combination: CAPITALS and SMALL CAPITALS.

Caption. In legal usage, the title or introductory part of a legal document. The word is sometimes used to mean a heading or title.

Carbon Black. Same as *Gas Black*, which see.

Carbon Paper. Thin paper coated with a mixture of lampblack and wax, used to duplicate writing or printing on another sheet. The duplicating is done by offsetting the color with pressure on the outside sheet. Manifold paper.

Car Card. A large card bearing an advertisement, used in trolley-cars, etc.

Card. A word of many uses in printing and related arts. (a) Primarily a piece of cardboard intended for some particular use, as a business card, calling card, post card, etc. (b) A statement or announce-

ment in a newspaper or periodical or sent in an envelope; an authorized notice of an event, etc. For other definitions see general dictionaries.

Cardboard. A general term applied to thick stiff paper or to stiff sheets made by pasting layers of paper together. The standard size of the usual kinds of cardboard is $22\frac{1}{2} \times 28\frac{1}{2}$ inches.

Card Catalog. A list of names, titles, etc., kept on cards of a uniform size and held in drawers or boxes. Usually each item is entered on a separate card, and the cards classified for ready reference. *Card index*, an index made with separate cards for items; in distinction from a printed list or book form.

Card Cutter. An apparatus for cutting cards into small sizes, made in many styles. The style now most used has a table with movable gages and a blade attached to one edge. At one end of this blade a shear is hinged which, being moved down past the stationary table, does the cutting. A similar machine of small size is used for trimming photographic prints, etc. Sometimes called *Paper Cutters*.

Card Indicators. Representations of the four suits of playing cards, used in playing-card literature. See *Playing Cards*.

Card Pips. Fifty-three characters representing each card in a pack of playing cards. They are cast on bodies of about 36-point and used to show plays in card games.

Caret ^ . A mark used in writing, proofreading, etc., to indicate where a word or other matter is to be inserted.

Cartography. Drawing or compiling maps or charts. Also spelled *chartography*.

Carton. (a) A pasteboard box, such as is used for packing merchandise. (b) The pasteboard used for making such boxes. See *Folding Box*.

Cartoon. (a) A humorous picture or caricature done in crude or sketchy style. (b) A drawing or design on heavy paper or cardboard of the full size of an intended work to be copied from it in fresco, mosaic, oil colors, or the like.

Cartouch. In architecture and decorative design, a tablet for ornament or to contain an inscription or emblem, formed like a sheet of paper with the edges rolled. The term is now loosely applied to any design in the form of a scroll, festoon, floral arch, or ornamental frame enclosing lettering, as a decorative title, heading, or tail-piece. The word cartouch has other meanings, in military practice, heraldry, pyrotechnics, etc., for which see general dictionaries.

Cartridge Paper. A strong, rough, hard-sized paper, originally used for making cartridges, but now used also for other purposes.

Case. (a) A shallow wooden tray divided into compartments, in which types are placed for composing. The common size is about $32\frac{1}{4}$

x 16½ inches, and one inch in depth. Two cases, placed one above the other on an inclined frame, are used for ordinary composition in roman type. See *Cabinet* and *Stand*. The lower case, divided into fifty-four boxes, contains the smaller letters of the alphabet, with figures, punctuation marks, spaces, and quads; the upper case, with ninety-eight boxes, holds capitals, small capitals, and miscellaneous characters. See *Lay of the Case*. Cases adapted to other than plain roman composition are needed in every composing room: for italics, accented letters, job and advertising type, borders, ornaments, electros, and for numerous other purposes. Many styles of cases have boxes for a complete job font: capitals, small letters, points, etc., in one case. (b) The cover of a cloth-bound book. (c) In electrotyping, a flat plate with a layer of wax, for molding the type or plate to be electrotyped. See *Electrotyping*.

Case Binding. In binding books in large quantities, as in edition work, the covers (or cases) are made separately and afterwards fastened on the backs of the books; in distinction from the method of making the covers of the books on the books themselves.

Case Cleaner. Many devices have been invented for cleaning dust, bits of paper, etc., from the cases partly filled with type. The commonly used apparatus is a small bellows or an air-pump. The modern vacuum cleaner, where it is available, is no doubt the most efficient means for extracting dust from cases and similar receptacles.

Casein. An albuminous substance obtained from milk and vegetable matter, used for sizing paper and as an adhesive paste in making coated papers. See *Sizing*.

Case Lot. A quantity of flat paper, usually wrapped in packages and enclosed in a wooden box. The term is indeterminate, but means, in the custom of the paper trade, a quantity of about 500 pounds.

Case Connection. A thin piece of copper attached to the top of the case for the purpose of making an electrical connection. In electrotyping, the electrical connection between the tank rods, the anode, and the cathode.

Case Making. In electrotyping, flowing the molding compound onto the case.

Case Shaving. In electrotyping, cutting or shaving off the top surface of the flowed and hardened case to give a smooth, even surface for molding.

Case Stand. A light wooden framework, used for supporting one or more type cases while in use.

Casing Letter. Putting type into cases when a new font is laid; an English term. In America, laying type.

Caslon Type. An old-style roman, revived and improved early in the 18th century, by William Caslon, an eminent English type-

founder. This style of face is now popular and used for many kinds of work. The Caslon roman is used for the text of this book. There are several faces of Caslon type. The American Type Founders Company has two, the Linotype Company one, and the Monotype Company one, all of them differing slightly in design.

Cassie Paper. The imperfect, damaged outside sheets of a bundle of paper. The term is now rarely used.

Cast. (a) To pour metal into a mold, as for a stereotype, etc. (b) When written at the head of a page on proof by the editor, author, or proofreader, *Cast* signifies that the proof is final and the form is ready for molding and the plate to be cast. *O. K.* is the term used in some establishments for the same purpose. When the type form itself is to go on the press for printing, the proofreader's final proof may be marked *Press*. See *Foundry Proof*.

Cast Off. To estimate the number of pages or columns of type a given amount of copy will make. Because words differ in length it is not possible to estimate exactly the amount of space any considerable number of words will make in type. When the copy submitted is reprint or carefully typewritten the process of estimating is greatly simplified, but in the case of handwriting of perhaps several persons, hundreds of pages of copy, broken up into paragraphs and other divisions, with many breaks and otherwise irregular with extracts, erasures, interlineations, etc., the calculation becomes difficult. Casting off requires a careful examination of the copy, a thorough knowledge of the materials to be employed, and some experience in typesetting. The ordinary method employed is, first, to make a careful count or estimate of the number of words or lines in copy; then, having decided upon the size of type and width of page, set a number of lines of the copy sufficient to ascertain the proportion between lines of copy and lines of type; then the total number of type lines is divided into the pages of required length. To illustrate: If fifty words of manuscript make five lines of type and the total number of words in copy is computed at fifteen thousand, the probable number of lines of type will be fifteen hundred; these lines divided into pages of thirty lines each, will make fifty pages of type. Liberal allowances must be made also for headings, indentions, short lines, and blanks. These can be estimated only by examining the copy.

Another method of calculating is to have a carefully made schedule of the number of words to a square inch in the sizes and styles of type used in a printing plant. A list like the following will be found useful for this purpose:

Average Number of Words to Square Inch
Roman Lower-case

	Solid	Leaded		Solid	Leaded
6-point.....	48	34	12-point.....	14	11
8-point.....	32	21	14-point.....	10	8
10-point.....	21	16	18-point.....	7	5

Casting-up. Measuring type by ems, to find the cost of composition; perhaps more commonly termed measuring up. In newspaper composing rooms, measuring the string. See *Measuring Type Composition*.

Catalog. (*a*) A list of names, titles, persons, or things, usually in alphabetical or numerical order, with explanatory additions, as a catalog of books, etc. Catalogs may be named from their arrangement, subject catalog (arranged by subjects), author catalog, card catalog, etc. (*b*) A commercial catalog is a list and description of goods or merchandise, with more or less specific information, with or without prices. Catalogs of this kind form an important class of modern business printing and involve a large annual expenditure on the part of manufacturers. They have been appropriately classed as a form of printed salesmanship, their primary mission being to sell goods by giving prospective buyers information concerning the articles or service offered. Because of their importance in this respect, much study and care are given to their preparation, both in their literary and physical qualities.

Catalog Container. Any container, as an envelope, wrapper, etc., used to enclose a catalog.

Catalog Cover. The cover or stock in which a catalog is bound.

Catches. The small hooks on electrotype blocks to hold the edge of the plate in place; sometimes called register hooks. See *Block*.

Catch-line. (*a*) A small short line between large lines in display matter. (*b*) A line containing the catch-word at the bottom of the page in old books.

Catch Up. In planographic or letterpress printing, when the halftone surface of a plate becomes saturated with ink or when the ink remains between the dots of the plate instead of being carried off by the impression, it is said to "catch up" or "fill up in the shadows."

Catch-word. (*a*) Originally a word placed below the end of the last line of a page in old-time books, showing the first word to look for on the next page. (*b*) The term is now often applied to a large striking word or phrase at the beginning of an advertisement to catch attention. (*c*) A guide or direction word at the top of a page or column in a numbered or alphabetically arranged list, as in a dictionary or reference work. The chief subject word or phrase in an index.

Cathode. In electrotyping, the negative pole, or the path which receives the electrical energy as it leaves the electrolyte or solution. The case is the cathode and receives the copper or nickel deposit.

Caxton Black. A style of old Flemish black letter used by William Caxton (1477), the first English printer. It is still used in a modernized form: **Caxton Black**, or **Flemish**.

Cedilla. A mark under the letter c (ç) to indicate that it has the sound of s, as in façade. In the absence of the proper character, a modern figure 9 upside down like this may be used sometimes.

Cellulose. The fibrous substance obtained from cotton, linen, hemp, wood, and many other plants by treating them in such a manner as to dissolve and extract the resinous and non-fibrous material. Cellulose fiber is the basis of all paper, the quality of the paper depending upon the proportions and quality of the cellulose. Clean new cotton contains the greatest amount of cellulose of any of the materials used for paper-making. It is represented as containing 90 per cent cellulose, the rest being water, fat, ashes, etc. From other materials used for paper the percentages of cellulose obtained are about as follows: flax, 82 to 86; hemp and ramie, 77; manila and jute, 64; pine wood, 57; spruce and poplar, 53; bamboo and sugar-cane, 50; straw, esparto, 46. See *Paper*.

Cellular Matrix. A feature of the Monotype casting machine. The matrix for each character of the font is a separate piece of metal which is held, with its mates, in line by a steel bar, called a matrix comb, fitted across the inside of a steel frame called a matrix case. The matrices, like cells, are held in line by means of a comb-like series of projections or spurs on the steel bars which fit into slots in the sides of each matrix and keep it in place. See *Lanston Monotype*.

Centered. Type lines or masses which are placed in the center of a sheet or in the center of the type measure are said to be centered.

Center Head. A heading which is so justified that it comes over the center of type matter is called a center head, in distinction from a side-head, or side-caption.

Century Type. Designed originally for the Century Magazine under the direction of the late Theodore L. DeVinne. In this face the hairlines are slightly thicker than usual in roman types and the round letters of the lower-case are increased in height, giving a darker color to the page and the effect of a larger face. It has been made in several variations, known as the Century family, in sizes from 6-point to 72-point. This is Century roman, *italic*, and **Bold**.

Celluloid. A white material formed of gun-cotton and camphor. It takes a fine polish, is highly inflammable, and has been used in various ways in printing, but not very generally. When made in sheets like cardboard it may be printed upon, though with difficulty, as its hard, glassy surface resists ordinary printing ink. By the use of heat and by combining some caustic substance with the ink the difficulty is overcome. It has been used for making printing plates and as a face for wood type, but not with success. Owing to its inflammable nature, celluloid should be carefully protected from fire.

Cent Mark. The character ¢, one of the commercial signs used in price lists, advertisements, etc., to designate cents.

Center Stitching. In pamphlet binding, stitching with thread by working it through the fold or center, in a manner similar to wire saddle-stitching.

Cerography. Engravings on wax spread on a sheet of copper; this engraved wax-covered plate is used as a mold from which an electrotpe is made. The process is used in making maps. See *Wax Engraving*. Cerograph, or cerotype, a printing plate or a print made by this process.

Chain Mark. One of the wider parallel lines of a watermark in laid paper.

Chained Books. The custom of fastening books to reading desks and shelves was common in the Middle Ages and later. In churches, castles, and large households, books that were highly prized were chained to their places but could readily be consulted, in the same manner as at the present time directories and other books of reference placed in public places are secured to prevent their being carried off.

Chalcography. Engraving on copper or brass.

Chalk Marks. Soft, white parts on the surface of lithographic stones.

Chalk Overlay. An overlay to fasten on the tympan or cylinder packing of a press; made of a special paper with a coating of fine chalk. See *Mechanical Chalk Overlay*.

Chalk Plate Engraving. (a) A simple and inexpensive method of making a relief printing plate, where there is a stereotyping plant. The picture or design is drawn on a smooth steel plate coated with a chalk preparation. The drawing is done with a fine pointed tool, which cuts through the chalk all the lines it is desired to print. This engraved surface is then used as a matrix and stereotype metal is cast from it, which results in a block with the engraved lines standing in relief. It is adapted for producing diagrams, outline drawings, and coarse pen sketches, but the success of the method depends upon the skill of the engraver who must do his work largely freehand. (b) A plate or print made by this process. Also called Hoke chalk plate from the name of the patentee of the process.

Challenge Press. A small job press of the Gordon style, made in several sizes.

Chamfered Rule. Many styles of brass rule have a very narrow, or fine printing surface or line; that is, a rule of 2-point body may have a 1-point face, or a half-point or even a hairline face. The face or printing surface may be made in the center of the 2-point body or to one side. When it is cut to one side, the rule is said to be chamfered or beveled. A chamfered rule with a 1-point face on a 2-point body therefore would have a slope or bevel of one point. See *Beveled Rule*.

Chandler & Price Press. A popular jobbing machine of the Gordon style, made in several sizes at Cleveland, Ohio.

Chap-book. A small book or pamphlet carried about for sale by chapmen or hawkers; a cheap book formerly popular in Britain and the American colonies. They were of no particular form, but rugged and uncouth, sometimes illustrated with crude woodcuts. The term has been revived, and is applied to pamphlets of modern make-up, but suggesting old-time characters.

Chapel. The workmen in a printing office, considered as a society. As used in this country, the term applies to an organization of the union printers employed in a printing house, though in its older usage it meant any assemblage of printing men employed in one place. If the printing house is a large one, it has a chapel of the compositors and another of the pressmen; a chapel of the book room, of the job room, or of any distinct department of printers. Each chapel is presided over by a chairman (formerly called the father of the chapel), and, around the imposing-stone usually, deliberates and acts upon matters relating to employment, disputes, chapel dues, and other questions. Joseph Moxon (b. 1627), gives this explanation of the origin of the term: "Every printing house is, by the custom of time out of mind, called a chapel, and all the workmen that belong to it are members of the chapel, and the oldest freeman is the father of the chapel. I suppose the style was originally conferred upon it by the courtesy of some great churchman, or men (doubtless when chapels were more in veneration than of late years they have been in England), who for the books of divinity that proceeded from a printing house, gave it the reverend title of chapel."

Chapter Heads. Headlines at the beginning of a chapter in books, usually sunk from the top lines of the full page.

Charcoal. A black, porous, carbonized material made by imperfectly burning some vegetable or animal substance, like wood, bone, ivory, etc. It is used for a great variety of purposes. Among engravers and artists it is used for polishing copper and zinc plates, and in the form of pencils made of charcoal dust, or in pencil-like sticks, it is employed for drawing, illustrative purposes, etc. Charcoal black is a writing or coloring pigment made of any calcined animal or vegetable substance.

Charcoal Drawing. A freehand drawing or design, made with charcoal sticks or pencils, usually on special paper.

Charcoal Paper. A soft, rough-finished paper used for making illustrations with a charcoal crayon or pencil.

Chargeable Time. In the *Standard Cost-Finding System*, which see, chargeable time is designated as the number of hours or hour-units (6 minutes each) actually necessary and required for the production or completion of any work or job. It includes overhead charges, and incidental operations and expenses, these becoming a part of the fixed hour rate for the kind of work involved. In *composition*, the chargeable time includes the preparation of the copy or the layout, the setting of

the type, proving, proofreading, revising, corrections (both ordinary and author's), making up or imposing of forms, and locking up. In *presswork*, chargeable time includes all make-ready and press preparation, feeding, washing up, and holding of the press when delay is caused by changes requested by the author or publisher. In the book-binding, photo-engraving, electrotyping, or any other one of the graphic arts industries, similar systems of cost-finding are used.

Chart. A sheet of cardboard, paper, or other material containing information in tabulated form, either written or printed; a graphic drawing or map.

Chart Paper. A machine-made paper, of the best rags, specially adapted for charts and maps, being very strong and thin for easy folding; map paper.

Chase. The iron frame in which a form is imposed and locked up for the press; made in many styles for various uses. For small job presses, the chase is a simple iron frame, slightly beveled on two outer sides, and is made especially to fit its place on the bed of the press. For book and other large work on cylinder presses, stronger chases are made of wrought iron, strongly welded at the corners and having cross-bars fitted in them, to enable the stoneman to lock up large forms with the greatest possible security. The thickness of the chase as it lies around the type-high form, is a little less than type-high, so that the inking rollers may pass over the face of the form without touching the chase or its accompanying furniture, quoins, etc. Two chases, made to lie side by side on the bed of a cylinder press, are half, or twin, chases; a large chase without a cross-bar is a broadside or poster chase; a chase to contain two pages of a newspaper has a cross-bar the short way of the chase to go between the pages; another style is divided into quarters by two cross-bars. The cross-bars may be fixed in the frame, or they may be removable, the ends being dove-tailed to fit into slots. When a chase has two sets of slots, allowing the bar to be removed from one place to another, it has a shifting cross-bar. Chases for cylinder presses have all outer sides without bevels so that they may be locked firmly when placed on the bed of the press. Chases used to lock up forms for electrotpe and stereotype molding are rarely larger than 12 x 16 inches, are extra thick and strong, and termed foundry chases. Daily newspaper rooms, where the forms are locked up for stereotype molding, have a special strong chase for each page, and it is fitted with a wedge-and-screw device for quick locking up.

Checkers and Chess. Types for representing these games are cast on em bodies, usually 12-point, 18-point, or 24-point. There are types for all pieces for each game, including blanks, which may be composed in a square to represent the playing-board and the characters placed to represent any position or play.

Check. A blank form, either printed or lithographed, partly blank, which, when properly filled out and signed, may be used as an order directing a bank or trust company to pay the sum of money indicated on the check.

Check Binding. A rather simple style of binding for check, receipt, note, and other similar books. These books usually have marble board sides, with cloth, keratol, or leatherette backs. They are side-stitched and trimmed flush.

Check Book. A plain book containing blank checks upon a bank or trust company.

Check Ends. Ornamental designs placed at the left end of printed bank checks; modern practice has largely discarded their use.

Check Folio. A flat writing paper 17 x 24 inches; a size not now considered standard.

Check Royal. A paper size, 19 x 28 inches in dimension.

Cheltenham. The name given to style of type face made by the American Type Founders Company, which has been a popular job and advertising face. It is made in a "family" of several series, adapted to a wide variety of work, and probably will remain as a standard American type style. These are some of the varieties of Cheltenham.

Cheltenham Oldstyle

Cheltenham Bold Condensed

Chemigraphy. A name given to any process of mechanical engraving depending upon the action of chemicals; a method of etching on metal in which photography is not employed.

Chemotype. (a) A process for producing maps, etc., by etching lines in a zinc plate covered with wax, filling them with fusible metal, and then eating away the zinc with acid, leaving the lines in relief. (b) A plate made by this process.

Chiaroscuro. (a) An old method of printing engravings, in which separate blocks were used to make different shades or tones of a black-and-white drawing. (b) A term applied to the handling of lights and shades in a picture; the art of representing light in shadow and shadow in light, so that the parts represented in shadow shall have the clearness of those in light, and those in light have the depth and softness of the parts in shadow.

Chinese White. A pigment made of zinc oxide, used in printing ink.

Chinese Wax. An almost white waxy substance, produced by an insect and sometimes used for sizing.

Chip Board. A cardboard similar to box board, made from low-grade mechanical wood pulp, chips, old waste paper, etc., often finished in special color on one side; used for folding boxes and similar containers.

Chirography. The art of writing or engrossing; hand-writing; e. g., skilled in *chirography*.

Chirograph. That which is written in one's own hand, as an obligation, note, or bond.

Chroma. Color intensity; the degree of departure from black or white. In color pigments, chroma is the quality which distinguishes an intense color from one not so intense; bright red, vermilion, flaming scarlet, emerald green, and other like colors are examples of high chromas. When used in reference to light, chroma means the purity of one wave-length free from all others.

Chromatic Printing. Printing in colors.

Chromatic Press. A printing press specially designed for color printing.

Chromatic Type. Type made so that it will print part of the character in one color, then another type inserted in its place to print another color until the character is complete. Rarely used.

Chrome. A yellow pigment obtained from lead chromate, used in making printing inks.

Chromo. (*a*) Pertaining to colors. In the arts of color printing and color photography there are many terms prefixed by this word, or a variation, the combining word often giving the particular definition, such as chromo-lithography, chromo-photography, chromo-xylography, etc. (*b*) Vernacular for any picture printed in colors.

Chromotype. (*a*) A picture produced by chromatic process; a photograph in colors. (*b*) A photographic process in which some chromium salt is used as a sensitive agent.

Chuck. The small wheel on the end of the form roller on a job press. Sometimes called roller collar, roller truck.

Cipher. (*a*) The tenth character in the list of arabic figures, 0, which, standing by itself, means nothing, but placed after a whole number increases the value tenfold. (*b*) Also an intermixture of letters, as the initials of a name, an enigmatic device. (*c*) A private alphabet or system of characters; a code.

Circled Corrections. Special alterations made by the proof-reader or author are often circled in the proof to call attention to them. See *Ring-mark*.

Circuit Edges. Bibles and prayer books are sometimes bound with projecting covers turned over to protect the edges; also called divinity edges.

Circular Quads. Made to justify with rectangular bodies outside but curved inside, in pairs, to hold curved lines of type; very little used now.

Circulars. This general term is applied to a miscellaneous class of small work, like letters, notes, announcements, etc., usually intended to be inclosed in envelopes and circulated by mail.

Circulation. The paid subscription list of a newspaper, magazine, or other publication; the total number of net copies issued daily, weekly, monthly, etc.

Circulation Manager. The person who takes charge of the distribution of a newspaper or periodical after it has been printed; the city agent.

Circumflex Accent. A mark made in one of three forms ($\bar{n} \hat{e} \bar{n}$), placed over a letter to indicate a variation in the sound represented by the letter. See *Accent*.

City Editor. The person on a newspaper who is directly in charge of city or local news and of the reporters who gather and write such news matter.

Clarendon. A style of type in which all the lines are thickened, somewhat heavier and more condensed than antique, with thick serifs: Clarendon. Largely used for headings and advertisements in newspapers.

Clasp Envelope. An envelope fitted with a small metal clasp or tongue to be inserted into a hole in the flap and bent over, thus permitting easy opening and examination, yet holding the contents as securely as though sealed. It is classed as an unsealed package in the mails. Clasp envelopes are usually made of manila or other strong paper and are made in a variety of sizes, $2\frac{1}{2} \times 4\frac{1}{2}$ inches to 10×13 inches, or larger, for commercial and other uses. See *Tension Envelope*.

Clay-finish Paper. Paper in which fine clay is used on the surface to fill up the pores and enable an additional smoothness of finish to be given. See *Coated Paper*.

Clean Proof. When a compositor sets his type without errors, or with a very few, he sets a clean proof. A dirty proof is one that has many errors.

Clean Wipe. When every particle of ink is removed from the surface of an intaglio plate, as when printing a line engraving.

Clearing Away. Putting surplus leads, rules, furniture, and other materials back in their places when the make-up and lockup are completed, or when forms are unlocked after printing. A workman who persistently neglects to do this is a nuisance in a composing room.

Clerical Errors. Mistakes made in copying or writing manuscripts, in distinction from printer's errors.

Cleveland Folding Machine. A machine for folding various thicknesses of printed or unprinted paper sheets. The principal mechanical construction of the machine consists of three knurled steel folding rolls which make the buckle or fold in the sheet. The Cleveland does not use knives, tapes, cams, chains, or sprockets, as do nearly all of the other folding machines. The sheets to be folded are placed on an automatic self-registering feed-table by hand or by means of an automatic feeder. Within this feed-table are a number of rough steel rolls that run diagonally to the side feeding guides, and these rolls automatically carry the sheets into the proper position for folding.

The sheets then pass between two knurled steel folding rolls, run at right angles to the length of the sheets, into a metal fold-plate having adjustable stops, so that any length of sheet within the capacity of the machine may be folded once or several times, either with parallel or right-angle folds. Finally the sheets are delivered to a stacker at the lower end of the machine. Cleveland folders are made in three models. Model B takes sheets from 4 x 7 to 26 x 56 inches in size, and will fold a 12-, 20-, 22- or 40-page book in one operation. It will make 210 different folds in all. Model E is a machine which will handle sheets from 4 x 6 up to 17 x 22 inches at a speed of 8,000 an hour, based on letter-size sheets, and will make three parallel and three right-angle folds. It will fold and stack 35 different forms. Model L is suitable for folding of letters, circulars, pamphlets, small folders, and advertising in general, ranging in size from 4 x 6 up to 17 x 22 inches. This machine will make one or two parallel folds, which may be followed by one or two right-angle folds. A total of 27 different forms may be folded at the same rate of speed as on the other Cleveland models. All models can be equipped with automatic feeders, of the continuous suction type or of the suction pile type. See *Folding Machine*.

Cliché. Old name for a stereotype or electrotype.

Cliché Glass Print. A photographic print made from a collodion-and-silver-coated glass plate which has been rendered opaque by exposure to the sun. A design is produced on the glass by scratching through the film on the plate with a needle or other sharp instrument. Afterward a sheet of sensitized paper is placed behind the plate and the whole is exposed. The sun, filtering through the scratches or cuts, prints their exact replica on the paper. The process was first used by Cuvelier, in 1854.

Clicking. The system of working in companionship under a clicker. See *Companionship*.

Cloister. A name given to some type faces recently made. **Cloister Black** is a modernized form of the Old English or black-letter of the early printers and manuscript writers. Its general use nowadays in cases where black-letter is desired indicates its acceptance as a standard face. **Cloister Oldstyle** and **Cloister Italic** are new varieties, having large round capitals, with lower-case letters slightly smaller than normal, giving a uniform tone of medium color, as shown in this sentence.

Close Quote. The second pair of quote-marks. The copyholder, reading to the proofreader, says *quote* or *commence quote* (") at the beginning and *close quote* (") at the end of matter within quote-marks. See *Proofreading*.

Close Spacing. Thin spacing, using the three-to-em space and thinner. Type set solid or with 1-point leads is properly close spaced. See *Spacing*.

Closed Shop. A workroom in which union workmen only are employed, and which is closed to workmen not belonging to a union; opposite of open shop.

Closed Up. When work is divided among several compositors and each has completed his part, or take, the matter is closed up. One slower than the others keeps the galley or form open until he finishes.

Claybourn Process. A very precise method of cylinder press rectification devised by Mr. N. W. Claybourn. It consists of making all parts pertaining to the impression, as to the bed, bearers, cylinder, etc., accurate to the last degree. In conjunction with accurate printing presses, the process employs specially built machines for the making of electrotypes or printing plates, and is based on the theory that make-ready will be entirely eliminated when there is a perfectly uniform contact between the plate and the paper in printing.

Clothbound. Said of a book that has been bound with cloth.

Cloth Boards. Stiff pasteboard book covers with an outside covering of cloth. See *Boards*.

Clump. The English trade name for a metal slug.

Coal-tar Inks. So called because the colors are derived from inorganic substances found in coal-tar, which is black pitch distilled from bituminous coal, condensed in the manufacture of coal-gas, and used for making anilin dyes and similar compounds.

Coarse Papers. A class of papers such as the cheaper books, boards, wrappings, and the like; distinct from *fine paper*.

Coated Blank. Blank card coated on one or both sides; made of low-grade pulp, and used for window and show cards, advertising signs, etc. See *Blank*.

Coated Paper. Paper which has a surface coating, giving it a smooth and usually a glossy finish. Coating is made of fine china clay, obtained from a soft rock ground to a fine powder. This is mixed with a thin glue-like liquid and applied to the surface of the paper. When the coating is dry, the paper is passed through a series of heated friction rollers under great pressure, which gives the gloss. The coating may be on one side only, or on both sides of the paper. Its smooth and delicate surface is well adapted to receive the minute dots and lines of halftones and other fine engravings. Also called *enameled paper*.

Coating Paper. Any paper, usually a book, used for a base for coating.

Cockle. The pucker naturally or artificially produced in a paper during the drying process. Common in rag papers.

Cock-robin Shop. A small printing office in which a cheap grade of work is done and labor poorly paid. A London epithet.

Cock-up Letter. An initial letter, larger than the text, justified so that it lines at the bottom and stands up higher than the text letters.

Codex. Before paper was invented writing was done on wooden tablets, and these tablets were called codices. The ancients wrote first by making notches in them; afterwards they covered them with wax and used a stylus to write with. The word codex thus came to mean writings, a book, a collection of laws, and finally was modernized into code.

Coffin. In the old-time wooden hand press, the framework into which was laid the stone that served for the bed. Also the framework into which an imposing-stone is fitted.

Coin Envelope. Trade name for a class of small envelopes $2\frac{1}{4}$ x $3\frac{1}{2}$ inches to $3\frac{3}{8}$ x 6 inches, with open flap on the end. See *Envelope*.

Cold Pressing. After sheets are printed and dried they are placed under pressure in a screw press or hydraulic press, to take out the indentations made by the type; an operation sometimes employed in the better grades of books. Same as dry pressing. See *Hot Pressing*.

Collating. Examining the folded sheets of a book to see that the signatures are in proper order. It is a necessity in good work, but slow and tedious. A modern method in large editions is to place a diagonal or other mark in the form so that it will show on the back of the signature between the first and last pages; the next signature has the mark moved down a little, and so on in regular order the back of each signature contains its mark. When the sheets for one book or magazine are gathered correctly, these marks will come in regular order; if irregular, the misplaced or omitted sheets may be readily detected. See *Signature*.

Collodion. Collodion is the base of the film of a wet plate in photography and is a solution of grain alcohol and pure ether—equal parts—to which has been added pyroxiline, commonly called gun-cotton.

Collotype. A variety of the photogravure process of printing. Also called phototype. See *Photogravure*.

Colon. (:) One of the punctuation marks, indicating a wider separation in the relation of the parts of the sentence than is made by the semicolon. A colon is used after a word or clause which formally introduces a quotation of a long sentence, a statement of particulars, a letter, speech, etc., especially if these are in a separate paragraph. It is used between clauses that are grammatically complete yet are closely connected in sense; also to separate a clause which is grammatically complete from a second clause which illustrates or amplifies the meaning of the first. Its most common use is after formal introductory words or phrases like Dear Sir: namely: In this use it is often accompanied by an unnecessary dash, like Dear Sir:—. The compositor may well omit the dash unless it is specially ordered inserted. See *Punctuation Marks*.

Colophon. A note of information about the making of a manuscript or book, giving an account of the work, place of copying, copyist, etc. The term is also used to include the printer's emblem, trademark, or other imprint placed on his work. The practice of making colophons was followed by the early typographers and these features are sources of much information about early printed books.

Color Filter or Screen. A sheet of colored glass or celluloid used in making plates for printing in colors. Three basic colors—red, green, and blue—are employed in the filters, but this does not mean that there are only three different color filters. For some elaborate color work as many as 19 different filters are necessary, all of which are in different values or shades of red, green, and blue. Occasionally two sheets of delicately colored celluloid are superimposed, and these two filters are used simultaneously. See *Color Separation*, and *Three-color Printing*.

Color Form. A shop term meaning the form for the second color in a work printed in two colors; as the form for printing red in a job printed in black and red.

Color Separation. In the "Process and Practice of Photo-Engraving," we may read: "Photographic plates having color-sensitive emulsions must be used for making color separations. The usual wet plate employed in black and white halftone is highly sensitive to white, violet, and blue, but is extremely insensitive to other colors. It has been explained that when a photographic plate is insensitive to a color, that color does not act on the emulsion and will appear as the darkest part of the print. The necessity for separation of all colors requires an emulsion which is sensitive to all. Such plates or emulsions are called 'panchromatic.' As color separations are usually made through a halftone screen, the photographic properties of the plates or emulsions must be such that suitable halftone negatives may be made with them. Dry plates which fulfil these requirements are called 'Panchromatic Process Dry Plates.' This is to distinguish them from dry plates which, though sensitive to all colors, are unsuited to use with the halftone screen. A wet plate emulsion also used for process work is called 'Collodion Emulsion.' It is similar to the ordinary wet plate emulsion except that the silver is combined with it and its chemical ingredients cause it to be sensitive to all colors. The method of making color-separation halftone negatives is called the 'Direct Method.' The older and now little-used method is called the 'Indirect Method.' For the direct method the process camera is mounted in the usual stand but equipped with a turntable. As process negatives are not turned in the usual manner to prevent reversal of the image, they must be suitably reversed when they are made. Negative turning would almost surely produce variations of the image, due to stretching or shrinking causing lack of register. Reversal of the image is accomplished by the use of a prism or reflecting mirror on the lens and turning the camera to a position parallel to the top of the plate. The image is reversed by reflection in the mirror and then passes through the lens to the photographic plate

which produces the same results as though the negative had been coated, stripped, and turned. Prisms are optical instruments made to work with accuracy and precision in conjunction with the lens. If a color subject is to be reproduced reversed in position, the camera is turned on the stand to the normal position used for black and white negative, and the prism is omitted. The halfprism screen used for process work is the same as that used for black and white, except that it is mounted in the screen holder in a circular frame so that it may be rotated to give the different screen angles required. If means are not provided for rotating the screen, the copy must be rotated on the copy board so that each color may be photographed at its proper screen angle. Copy boards are sometimes made on the turntable principle to afford suitable means for rotating the copy." The process of separating the various spaces on line negatives in order to make separate plates for each, for printing in two or more colors, is also known as *color separating*. In this method as many negatives as there are colors are made from a black-and-white copy, and on each negative the part which is to show a different color in the printing plate is painted or stopped out.

Colortype. The art of producing plates for printing in many colors by means of only three or four printing plates, that is, one plate each for yellow, red, blue, and black. See *Three-color Process*.

Colporteur. One who carries around and sells books; in this country applied to a vendor of religious books.

Colt's Armory Press. A series of platen presses for printing, embossing, scoring, etc., built on the lines of the Universal Printing Machine; so called because they were originally made at the Colt's Armory at Hartford, Connecticut. Now manufactured by the Thompson-National Press Company, Long Island City. See *Universal Press* and *Laureate*.

Columbian. An old size of type equal to two-line brevier, or about 16-point.

Columbian Press. An iron hand press invented by George Clymer, of Pennsylvania, and very popular during the early part of the last century. It did good work and was ornamented in a novel manner, being surmounted by a representation of the American eagle "with extended wings and grasping in his talons Jove's thunderbolts, combined with the olive branch of Peace and cornucopia of Plenty, all handsomely bronzed and gilt." The name was also given to an "amateur" job press.

Columbier. A size of writing paper, about 23 x 24 inches. A term of uncertain French origin.

Column. One or two or more vertical series of lines side by side on a printed page. Newspaper columns are separated by rules, usually about 6 points in thickness. In periodicals and books which have their pages divided into columns, the usual practice is to separate the

columns by a blank space, using a reglet or slug. A well-defined white space between regular columns provides as good a separation as a light line and is not so bothersome to the pressman.

Column Rules. Strips of brass to separate columns, use mostly in newspapers. They are type-high, and vary from 4-point to 12-point in thickness, with the face beveled on both sides so that the light line is in the middle. A custom with careful workmen is that a plain column rule should not project above the top line of the columns it divides; but if there is a cross rule or border at the top of the columns, the column rule should go up to that cross rule. A column rule finished at the end with an ornament may end whenever good taste indicates.

Comb Out. See *Fan Out*.

Combination Borders. Those type borders which, by being cast on similar bodies or on multiples of a smaller body, may be combined in various ways to suit the form required. The term applies more especially to a class of elaborate borders made up of pictorial and fanciful features, now gone out of favor. See *Border*.

Combination Halftones. (a) Printing plates made partly with a halftone surface and partly with a line surface. (b) Plates made for printing in two or more colors, by the use of a key plate and extra plates for the additional colors. See *Halftone*.

Come In. Copy is said to come in when it is set so that it occupies a designated space.

Comma (,). The most frequently used of the punctuation marks. Besides its use in separating minor clauses of a sentence, it is used, turned upside down, in pairs or singly, to mark the beginning of a quotation (""); in tabular matter two in a similar manner are sometimes made to serve as a sign for ditto (""); in large numbers stated in arabic numerals it is used to separate the figures in classes of hundreds (123,456,789); it sometimes indicates the omission of two letters in the name-prefix Mac, as M'Kay, although this is not an approved form. See *Punctuation Marks*.

Commence Quote. An expression used by proofreader's copyholder, when reading copy, to denote the beginning of a quotation. See *Close Quote*.

Commercial. Denoting a size, style, or material used in commerce and business practice. Commercial note, a writing paper 8 x 10 inches, folded (half note, 5 x 8 inches); commercial letter, 11 x 17 inches, folded (half letter, 8½ x 11 inches); commercial envelope, variable from 3½ x 5½ inches to 3½ x 6½ inches, etc.

Commercial Post. An English size of paper, 11 x 17 inches; the same size as *Commercial Letter*.

Commercial Signs. Arbitrary marks used in commercial and business literature: \$ dollar, ¢ cent, £ pound sterling, / shilling, @ at, to, % account, % care of, ^{B/L} bill of lading, ^{L/C} letter of credit, lb pound weight, ¢ per, % per cent, № No. or number, & and.

Companionship. When a number of compositors work together under a clicker, who takes charge of the work, gives out copy, finds sorts, makes up, etc. For these services, intended to facilitate the work of others in the companionship, the clicker receives a share of the total amount earned. An English custom, not common in America.

Comp. Abbreviation for compositor.

Comparative Weights. See *Equivalent Weights of Paper*.

Complementary Colors. Those pairs of colors which, when mixed, produce white or gray light: red and blue-green, green-yellow and violet, yellow and indigo-blue. In pigments, those opposite colors which, when mixed, produce a neutral gray; thus blue is complementary to yellow-red; yellow is the complement of purple-blue; red is the complement of blue-green.

Composing (not compositing). Setting type.

Composing Machines. Many inventions have been made from time to time, for setting type mechanically. The first patent for a typesetting machine was issued to a Dr. William Church of Boston, Mass., then living in England, where a patent was filed in 1822. The machine consisted of a large wooden frame in which the type was arranged in channels and a keyboard connected with the channels. On touching a key a type was ejected and dropped into a tube, from which it was removed and justified into lines by hand. The power used was a clock mechanism. The machine had no arrangement for distributing. Other machines were invented and patented later, and a scheme for distribution was added. About 1880, Joseph Thorne invented a machine which has been improved and is still in use under the name of the Simplex Type-Setter. Distinction should be made between type-composing and type-casting machines. The Simplex, sometimes called the Unitype, composes foundry-cast type. The Linotype, Linograph, and the Intertype, assemble matrices and cast the whole line in a single slug. The Lanston Monotype casts separate types and composes them into spaced and justified lines. See *Simplex Type-Setter*, and *Mergenthaler Linotype*.

Composing Room. That part of a printing establishment in which type is set, proofed, imposed, locked up, and made ready for the printing press.

Composing Room Cylinder. A proof press in which the impression is made by means of a small cylinder. These are now made in several styles, and are somewhat more elaborate than the common galley-proof roller apparatus. There is a set of grippers attached to the cylinder to carry the sheet around, and a self-inking set of rollers. In some styles the cylinder turns in a stationary steel frame while the bed moves back and forth, as in the usual flat-bed cylinder printing machine; in other styles the bed is stationary and the cylinder rotates from one end of the bed to the other, carrying the inking rollers with it. See *Proof Press*.

Composing Rule. A piece of steel or brass used in a composing stick, against which the types are placed in setting; it usually has a nib on one end, to remove it from behind the line after the justification is completed.

Composing Stick. The oblong tool which the compositor holds to place the types in as he takes them from the case. As its name implies, it was first made out of a stick of wood, but wooden sticks are now employed only for large poster work. The common stick is polished steel, sometimes nicked. It usually has a movable knee, held in place by a thumbscrew or other clamping device, which enables the compositor to adjust it for setting any length of line within its limits. For newspaper and other work where the length of line is fixed, the adjustable knee is not needed and the stick is made in one piece. A modern style for job compositors is the graduated stick, which has the adjustable knee slotted to the stick in such a manner that it may be set to measures of multiples of 6-point without using quads or other materials to fix the measure. Another style of graduated stick, self-setting to measures of 6-point multiples, has a series of slots on the under side of the base plate, into which the teeth of a spring clamp are fitted, holding the adjustable side gage firmly at the back and front. An uncommon kind of composing stick has two movable knees, a small one lapping over the large one, so that one stick may be set for two measures: one for the lines of the text and the other for side-notes. The usual lengths of steel composing sticks range from 6 inches to 24 inches, with a capacity for holding as many lines of type as will make from 2 to 2½ inches in a column. Accurate justification of type lines depends upon accurate, well-kept composing sticks. They should be treated with more care than they usually receive, and not allowed to rust or be damaged by violent handling. It is important that the knee should be kept true with the opposite ledge of the end of the stick.

Composition. (a) That part of the work of printing which pertains to typesetting, making up, etc. Arranging the pages in a chase and locking up for the press is *imposition*. The term composition is also applied to a mixture of glue, syrup, etc., used in making ink rollers. See *Roller*.

Compositor. One who sets type; according to the class of work done, he is termed a book, newspaper, ad, or job compositor.

Compound Words. Two words connected with a hyphen, like arm-chair, house-boat.

Concordance. An alphabetical word-index showing the places in the text of a book where each principal word may be found, often with its immediate text.

Condensed. Said of a type face thinner than normal, the letters being compressed sideways to give a shorter line. The term is relative and does not denote any standard width. Example: **Cheltenham Bold Condensed**, the normal face being **Cheltenham Bold**. See *Extra Condensed* and *Set of a Type*.

Cone Pulley. A number of graduated sizes of wheels with slightly convex faces, placed together, upon which a belt is run to transmit power from another pulley to the driving wheel of a machine. Used to vary the speed of the machine. A step-pulley.

Contents, Table of. One of the preliminary parts of a book which gives a description of text matter, with page references. It differs from an index because it is at the beginning and follows the order of the book itself, while an index is usually at the end of the volume, gives the subjects in greater detail, and is arranged in alphabetical order.

Continuous Feed. This term is used to describe the action of an automatic sheet feeder attached to a printing press, folder, or other machine, so constructed that the supply of sheets can be renewed without interrupting the action of the machine to which the feeder is attached.

Contraction. A word shortened by the omission of one or more letters, or represented by an arbitrary form. Omitted letters are indicated by inserting an apostrophe, like Fred'k, or by grouping essential letters and putting a period at the end, like advt. See *Abbreviation*.

Controller. A magnet used in automatic regulation of the current to control the power or speed of an electric motor; operated by a lever, push-button or similar device. A necessary device on electrically driven printing machinery, etc.

Copper. Largely used for printing, for making electrotypes, for copper-facing type, and for plates to be engraved or etched. Copper is also used in small quantities in the mixture of type metal, and in the composition of brass. Copper bronze powder is used for printing purposes.

Copper Etching. (a) A method of producing fine pictures, similar to copperplate engraving, the plates being etched with acid instead of engraved with a tool. The entire plate is covered with a ground resembling varnish and the lines of the drawing scratched through the ground, after which the acid is poured on and the lines eaten, or bitten, down to varying depths and thicknesses. (b) A line drawing reproduced on copper instead of zinc, for softer effect in direct printing, is also termed a copper etching.

Copper-facing. A method of coating by electric action the face of new type, so that it will be more durable. The copper-facing of type is not common, and never was extensively practiced, as the replacement of worn-out type is now considered more practicable.

Copperplate Engraving and Printing. This is one of the oldest methods of engraving, having been practiced before the invention of typography. The engraving is done on a plate of polished copper and the impression made on a press with a roller motion. The lines are cut in the plate, ink is rolled over it so as to fill the lines; surplus ink is then

wiped off the surface, leaving ink in the lines only. The sheet is placed in position and the whole subjected to a pressure which forces the sheet into the engraved parts. The engraving is done chiefly by hand with sharp tools, or gravers, making precise lines of varying thickness and depth. The method is especially adapted for script lettering. A series of uniform lines, straight, curved, or waved, may be made on a ruling machine, and stippling done by minute punctures. Copperplate printing, being almost entirely hand work and not easily adaptable to rotary or other mechanical processes, is slow and costly. The presses used are not at all like those used for type forms and relief plates. The output of a single press is limited to a few hundred copies a day. This method is the same now as when it was first invented in the fifteenth century. The tools are the same; the workman wipes off his plate in the same way. The D-roller press is practically the same as it has been for years. Except for copper etchings, copper plates are now used chiefly for name cards, wedding and society printing, and cards and notes requiring relatively few copies. Steel plates, treated in the same manner, are much used for similar work. See *Steel Plate Printing*.

Copperplate Paper. A good quality of unsized paper, calendered on one side only.

Copperplate Gothic. A large series of type faces of the sanserif style, made in many condensed, extended, shaded, roman, and italic faces. Copperplate Gothic may be had in sizes up to 24-point, each body size having from two to four different sizes of face. This type is used a great deal in all grades of commercial and social printing. Some of the smaller copperplate letters are made in imitation of the letters used by copperplate engravers.

Copperplate Roman. A type face of roman style, made in imitation of a letter used in the copperplate engraving industry.

Copper Thin Spaces. Thin pieces of copper, substitutes for paper and cardboard, used in spacing and justifying lines of type in jobwork; made usually for 6-point and larger sizes, which may be obtained of dealers. For easy identification, spaces of $\frac{1}{2}$ -point thickness are copper and the 1-point are brass. See *Brass Spaces*.

Copy. (a) The handwritten, typewritten, or printed words or design given to the printer. Printed copy to be set again is termed reprint. Care taken in the preparation of copy lessens the labor of producing good results. It should be written with ink, not with lead-pencil, one side of the sheet only. The pages should be numbered consecutively from beginning to end. The sheets should be of a size convenient to handle, never rolled, and, if possible, not folded. See *Author's Alterations*. (b) A single specimen of a finished work. A reproduction or imitation of a writing, picture, magazine, book, or set of books, etc.

Copy-cutter. In daily newspaper rooms, the foreman's assistant, whose duty is to prepare the copy for the compositors. He receives it from the editorial room, marks the size of type for each article, the

style of heading, etc., to accord with the custom of that publication, and cuts the copy into takes, or small portions, so that it may be in the hands of several compositors and set up in the quickest time.

Copy-desk. In newspaper offices, the desk or table at which the copyreaders or sub-editors sit. All material intended for publication passes through the hands of the copyreaders at this desk.

Copyholder. (*a*) One who holds copy and reads it aloud to the proofreader. In establishments doing book and periodical work, the duties are exacting, as the reading may often require in addition to speaking the words, the naming of every point, capital, italic, accent, or other special character employed in the work. In small printing offices, ordinary matter is often read by a proofreader alone, with the copy near the proof for comparison. (*b*) A small frame placed on the compositor's case or near the keyboard of a composing machine, to hold copy. See *Guide*.

Copy-hook. Ordinarily a filing-hook beside the copy-desk, upon which copy is placed for compositors in a newspaper office. There is usually a hook for each size of type in use, and copy is placed in regular order, face inward.

Copying Ink. An ink, containing glycerine, sugar, or some other substance which, after once becoming dry, may be rendered soft again by the application of moisture and its color transferred by pressure to another sheet. It is made in several colors and in different forms for writing and printing purposes. Copying ink to be used on a printing press is quite unlike the common printing ink. It contains no oil; and the printing form, rollers, and ink plate should be free from all oily substances. The rollers must be hard and dry; soft composition rollers are not necessary; old rollers, unfit for use, may be sponged with water or weak lye and thoroughly dried. Sometimes cloth-covered rollers are used where there is much of this kind of printing. To wash off copying ink, use clear water (warm water if it can be obtained), not benzine or other oil. The rollers should be set to run over the form lightly, and in case of long runs when the ink dries too stiff, it may be reduced with glycerine; water will soften the ink when it is dry, but is not satisfactory to thin it out while printing.

Copal. A resinous substance exuding from various tropical trees, used chiefly for making varnishes. In the manufacture of printing inks it is used as a vehicle.

Copying Press. A small machine, commonly used in business offices for making copies of typewritten or manuscript letters by transferring the ink under impression. The original copy must be made with copying ink. A letter press.

Copyright. The legal right which an author, designer, inventor, or proprietor has in his own original productions, especially the exclusive right to print, publish, and sell his literary works, for his own benefit, for a certain period of time. This right may be in maps, charts,

photographs, drawings, paintings, musical compositions, statues, and models, as well as in books. The copyright law of the United States requires the author or artist, in order to secure copyright for works reproduced in copies for sale, to send to the Copyright Office, Library of Congress, Washington, D. C., immediately after publication, two complete copies of the work, with an application for registration, stating to which class it belongs, and a money order for the statutory registration fee for one dollar. In the case of photographs, where a certificate of registration is not demanded, the fee is fifty cents. Publication of the work with a copyright notice, in the form required, initiates copyright. The term for which copyright extends is twenty-eight years, with the right of renewal for a like term. For specific information and blank forms, send to the Copyright Office at Washington, D. C.

Copyreader. In newspaper offices, a person who sits at the copydesk and reads and edits manuscript copy intended for publication. Generally, the copyreader also writes the headings and subheadings.

Copywriter. One who writes *copy* for advertising or publication purposes.

Cored Base. A metal base, as of type or electros, which has been made with holes, to economize metal and make the block lighter in weight.

Cores. (a) The hollow spaces in the bodies of large metal types and in metal bases of stereotypes and electrotypes. (b) The center rods of composition inking rollers; also called roller stocks.

Corner Quads. Cast in the shape of a right angle to match 6-point and 12-point quads. They are useful to place outside the corners of a page with mitered rule joints to secure a true and even junction of the face.

Cordovan. A fine-grained leather used for binding books. This kind of leather originally came from Cordova, Spain, but it is now generally made from horse-hides.

Corduroy. A thick, soft, ribbed fabric, made in various colors, used for covering account books or loose-leaf binders.

Cornering Machine. For cutting the corners of books and cards, usually round, but may be in different shapes.

Corner. (a) In bookbinding, a piece of leather or other material pasted upon the corner of a book in half binding. (b) A tool used in decorating book covers. (c) In type borders, the piece which forms the corner of the panel.

Correcting. In America the term is applied generally to the changing of wrong letters or words, or making other alterations in type forms. In England it may mean the reading and correcting of the proof as well, so that the expression *correcting in the metal* is used there to distinguish the mechanical operation from the reading of proofs.

Corrector of the Press. A term formerly and now occasionally used to mean the proofreader.

Cost System. A method of keeping records, by means of tabular and other blank sheets, clock stamps, etc., of the materials used, labor expense, and all other items of cost, direct and indirect, which enter into the production of a manufactured article, for the purpose of ascertaining as nearly as possible the actual total expense, as a basis upon which to establish a selling price. See *Standard Cost-Finding System*.

Cotton Linters. The short linters or lint which remain on the cottonseed after the cotton has been ginned, now removed and used as a raw material in paper manufacture.

Cottrell Presses. Cylinder machines made by C. B. Cottrell & Sons Co. at Westerly, R. I. They are made in various styles for typographic work, comprising sheet-feed rotaries, printing one side of the sheet in color; multicolor rotaries, printing one side of the sheet in four colors in one feeding, the colors being superimposed upon each other wet; also web rotaries in various styles for high-grade work, printing one or more colors on one or both sides, for periodicals, large-edition catalogs, etc. Some of the rotary machines print one side only, others are perfecting machines with shifting-tympan devices for overcoming offset when printing the second side of high-grade paper. Some machines deliver the sheets flat, others have attachments for delivering the sheets folded and pasted or wire-stitched.

Couch Rolls. On the Fourdrinier paper-making machine, the steel, felt-covered cylinders or rolls over which the web of paper passes to expedite drying.

Counter. (a) A small mechanism attachable to printing presses to record the number of impressions made. See *Numbering Machine*. (b) In typesetting, the hollow parts around and within the lines of the face of a type. See *Type*.

Countershaft. An intermediate revolving shaft connected by a belt to the main driving shaft and transmitting motion to a machine. The growing practice of using direct connected electric motors to run printing machinery is making the use of shafts and countershafts unnecessary in many workshops. See *Cone Pulley*.

Country Press. A name commonly given to the simplest form of the single revolution or drum cylinder press, because this style of machine is mostly used in country establishments on newspapers of small circulation and ordinary grades of typographic work. For many years it was the only press known, but was not termed country press until, after a time, it was gradually superseded in the cities by faster and more accurate machines, while still retaining its usefulness in places where the more highly organized and more expensive machines are not necessary. Hence the name "country press." In a strict sense the name is a misnomer, as many of these machines are used in cities and many higher-grade machines are used in country establishments.

Counter-die. See *Female Die*.

Countersunk Dies. Dies which are intended to produce relief effects in two distinct levels.

Cowhide. A coarse leather made from the skin of a cow, commonly known as "American Russia" or "Imitation Russia." It has a slight grain, and is tough and strong.

Cover Papers. For pamphlet covers, booklets, and a large variety of uses. They are made from almost every variety of paper-making material, and in colors and finishes without end. In no other line of paper goods are greater efforts made to produce new varieties. The standard sizes for printer's use are usually 20 x 26 inches, and 23 x 33 inches. The young printer may profitably examine the sample books from the nearest dealers to learn the prevailing fashions in cover papers and study the manner in which printing and embossing, plain and in colors, are applied to modern pamphlet covers.

Crackle. A desirable crackling sound produced in a sheet of paper when held by the fingers and waved quickly.

Cranston Presses. A series of flat-bed cylinder machines formerly made by J. H. Cranston and the Cranston Printing Press Co. at Norwich, Conn. They were made in drum-cylinder style and also in two-roller and four-roller two-revolution patterns, in a variety of sizes, designed for general commercial, book, and newspaper work. A number of these presses are still in use. See *Drum Cylinder*.

Crash Finish. A finish on paper resembling a coarse linen fabric; applied by pressure.

Cream. A natural, light yellow hue.

Cream Laid. A cream-tinted paper having watermarked lines running through it at regular intervals. In *cream wove* paper these lines do not appear. Same as natural. See *Laid Paper*.

Creasing. In bookbinding, the bending of sheets with a folder in order to make them lie flat.

Cribble. To cover with small punctures or dots, as in engraving or decorating wood or metal. *Manière cribble*, a dotted style of engraving on metal, showing white dots on a black ground—an old method. The dots were made in the metal by a punch, the parts hollowed out showing a light image on a dark ground. Sometimes spelled *crible* or *criblee*. Dotted metal plates were used as ornaments on book covers and furniture, the intended dots being filled with enamel.

Crop. In photo-engraving, when a plate is to be cut down, either vertically or horizontally, beyond the margin, so that part of the picture is cut away, the order is given to "crop to 3 inches wide," or "crop to 4 inches deep."

Crimping. Creasing, bending, or mangling sheets from both sides by means of wheels on a machine to permit a flat lay in loose-leaf covers.

Cropped. When a book is trimmed too much in binding, it is said to be cropped. When it is cut down so that the printing shows in the edges it is said to *bleed*.

Cropper Machine. A popular English job press resembling the Gordon press of America.

Cross-bars. The bars which divide the chase into sections to lock up large forms more securely. When an oblong chase has two cross-bars crossing each other, one is the long cross and the other is the short cross. See *Chase*.

Cross-hatching. In drawing and engraving, a shading made by parallel lines crossed over each other.

Crown. A size of flat writing paper. In the United States the size is usually 15 x 19 inches; sometimes termed crown cap. Crown octavo, a sheet folded into eight leaves, the leaf being $4\frac{3}{4}$ x $7\frac{1}{2}$ inches.

Crushed Levant. Levant morocco leather with the grain crushed down to give a smooth surface; used for bookbindings.

Cryptography. The art or act of writing in secret characters as by the substitution of one letter for another, so that it will look unintelligible to one not familiar with the key; communications in cipher.

Crystal Plate Glass. One of two kinds of glass used in wet plate photography. It has a perfectly flat, even surface, obtained by pouring the melted glass on a table that has edges around it, and running rollers over the surface, then grinding it to a polish.

Cross Direction. The direction opposite to which the cellulose fibers flow on the paper-making machine; against the grain when applied to a piece of paper.

Cross Reference. In dictionaries or glossaries, a reference made from one paragraph or index to another part of the same book where the same or a similar subject is treated; a cross index.

Cub. A name given to a young reporter on a newspaper or to a beginner at journalism.

Cunabula. See *Incunabula*.

Curly ñ. An easy way to name this character. See *Tilde*.

Cursive. Denoting writing or lettering in which the characters are joined together, as in the usual handwriting, or where freehand strokes naturally run from one letter to the next, as when using a pen or brush; in distinction from more formal geometric letters, like the roman capitals. A letter or character used in cursive writing; a manuscript or printing in the cursive character.

Curved Plates. Printing plates or surfaces, such as electrotypes, stereotypes, aluminotypes, etc., having a semi-cylindrical shape, so that they will fit onto the cylinders of rotary presses.

Cut. Printing shop term for a relief engraving of any kind, original or electrotype; also the printed impression thereof. The term is a survival of the time when all engravings used with type forms were woodcuts. It is not properly applied to plates made by modern engraving methods.

Cut Black. A printing ink of intense blackness for woodcut printing and for zinc etchings having strong color.

Cut Cards. Small sizes of cards and tickets cut in certain standard sizes and shapes, in distinction from cardboard in large sheets. Besides the large sheets as they are sent from the mill, many dealers carry in stock, usually of the better grade, small cards nicely cut with smooth edges and packed in lots of 100, 500, 1000, etc. When standard sizes are used and these can be cut in large quantities ready for printing, there is great convenience in handling stock this way, but many jobs require cards which must be cut in special sizes and from special stock which it would be unprofitable and impossible to keep on hand. In these cases the printer must obtain the large sheets and have them cut as needed, and he should add an extra charge for the cutting. Small cards for nice work are properly cut on a card cutter, each sheet being cut singly to get a smooth true edge. When cards are cut in piles on a paper cutter the edges of the card will be turned over and one edge will usually be more or less fuzzy.

Cut Edges. A book trimmed by a machine has cut edges; if opened by a knife or folder where the folds occur it is opened out untrimmed, or uncut.

Cut Flush. When the cover on a book, pamphlet, or other work, is trimmed with the inside at one cut, so that the edges of the cover and inside sheets are even. See *Overhang*.

Cut-outs. Printed pieces cut into circles, ovals, or irregular shapes, frequently mere outlines, by means of special steel dies.

Cut Work. Obsolete term for printing in which relief engravings are largely employed. Cut form, a press form composed chiefly of engravings—originally woodcuts, but the term is sometimes improperly applied to halftone and line plates. See *Cut*.

Cut-in Letter. A large letter set at the beginning of a paragraph; an initial letter.

Cut-in Note. A note or title set into the side of a page of reading matter; it is usually of smaller size type than the main page, but is sometimes in bolder face. Compare with side-note, a note placed in the margin of the page.

Cut-off Heading. In tabular work, the arrangement which permits a single horizontal rule to separate a series of box headings from

the tops of their respective columns, in order that the box headings may be taken off at one lift; a convenience when the heads are to be taken from one page and used again for another similar table. In this arrangement the vertical rules from top to bottom of the table must be in two pieces, one piece separating the box headings and another the columns in the table itself. A disadvantage of this arrangement is the difficulty in making the vertical rules align perfectly with each other. See *Tabular Work*.

Cut-off. In imposition and binding, when the pages are arranged so that a part of the printed sheet is cut off and folded separately, then placed with the other pages of the signature for binding. Same as off-cut.

Cut-out Background. Said of a halftone plate in which the background screen and unnecessary details are omitted. This is done by means of a mask and a double exposure in photographing, one through a screen and one without the screen, laid together on the glass and printed, the plain negative blanking out the parts not wanted.

Cutting Rule. This is made of steel, usually 2-point, 3-point, or 6-point thick, and slightly more than type-high, to be placed in forms for a printing press or boxmaking machine. It is made into dies for cutting out paper or card in various shapes, such as folding boxes, etc. Brass or steel cutting rule with the face notched in like this ----- is often used on job presses (without inking rollers) for perforating cards, tickets, etc.

Cutting Stick. A strip of hard wood, used in a paper-cutting machine, in order to protect the edge of the knife while it cuts through a pile of paper.

Cyclostyle. An apparatus for making duplicate copies of writing, etc. In the original apparatus, punctures were made in a thin wax paper by means of a rough-edged wheel at the end of a handle used like a stylus. This wax-paper stencil being then laid on the sheet to which the writing was to be transferred, an ink roller was pressed over, forcing the ink through the perforations to the sheet below. The cyclostyle has been superseded by the neostyle, and a typewriter is used to make the stencil, the impression marking a specially prepared paper so that the ink applied can pass through to the sheet behind. See *Neostyle*.

Cylinder-dried. Said of paper that has been dried on the cylinder paper-making machine in distinction from other methods of drying.

Cylinder Machine. A paper-making machine the wire of which is wound about a cylinder, as distinguished from the Fourdrinier, which has a flat wire.

Cylinder Press. The style of printing machine which prints by means of a rolling impression against the type form or printing surface. It is made in many varieties, which are known as drum-cylinder,

two-cylinder, stop-cylinder, perfecting presses, and double-cylinder presses. See under these headings. The style of machine in which a cylinder is used to give the impression while the printing surface is on a flat form is in this country termed a cylinder press. Those machines in which the printing forms are curved and fastened on the surface of a cylinder are termed rotary machines. See *Drum Cylinder*, *Rotary Press*, *Two-revolution Press*.

Cylinder Sheets. The sheets fastened upon the cylinder and which form the basis of the make-ready; the packing, or tympan.

Cyanotype. A print obtained by a photographic process, usually in blue or brown color, on sensitized sheet of paper, used in copying line-drawing, maps, charts, etc., a blue print.

Dabber. A soft leather or silk ball for inking a printing form, applying moist colors, and similar purposes, used by copperplate engravers, etchers, decorators, etc. Ink dabber, the old-time inking ball.

Dactylology. The practice of communicating ideas or conversation by signs made with the fingers and through the use of manual or deaf-mute alphabets. There are two so-called manual alphabets, the one-hand alphabet, perfected in 1789, and the two-hand alphabet based on that of Dalgarno, published in 1680.

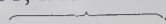
Dagger. (†) A reference mark used in writing and printing; also called the obelisk. See *Reference Marks*.

Daguerreotype. An early variety of photograph, produced on a silver plate, or a copper plate covered with silver; also the process of producing such pictures. The plate was rendered sensitive by the action of iodine, or iodine and bromine, and after the exposure in the camera, the latent image developed by the vapors of mercury.

Dammar. A resin derived from various pineaceous trees in Australia, New Zealand, and the East Indies. It is used as a varnish in the manufacture of printing inks.

Dandy Roller. A light skeleton drum with a surface of wire gauze, attached to paper-making machines. The wet web of paper carried on the endless wire of the machine passes under this roller and is pressed by it. The arrangement of the wires on the dandy determines the *wove* or the *laid* effect on the sheet. When letters, figures, or other devices are worked in fine wire on its surface, it produces the water-mark. See *Paper*.

Dashes. Cast in type of all sizes up to and including 24-point. In the smaller sizes there are usually four lengths: en —, em —, two-em —, three-em —. They are included with the miscellaneous characters in fonts of roman type. As a mark of punctuation the em dash has various but not always proper uses. It may rightly serve in place of the parenthesis, and to indicate an abrupt change in state-

ment, to connect side-heads with their text, or in place of a colon to indicate that something is to follow. Its use after another point (like — or :—) is not always approved by printers and proofreaders. Dashes formerly served to indicate suppressed words or parts of words, like M——, d——. The en dash is sometimes used in place of a short, stubby hyphen when that mark does not seem adequate, as in compounding words in capitals, like RED–HOT, 1915–1916. Dashes are also used to extend a pieced brace, thus . The longer dashes serve many purposes in all kinds of work.

Dash Leaders. Same as hyphen leaders. See *Hyphen*.

Dash Rule. A metal or brass rule, of various lengths and patterns, used for separating headings and articles in newspapers and other divisions of type composition.

Date-line. In newspapers or other publications, the line or space in the form where the date of the issue is inserted.

Dead. Applied in several ways to matter whose usefulness or interest has gone by. Dead matter is type that has been printed and is ready for distributing; dead copy is that which has been prepared, but for some reason is not to be used. Type forms, after use, are *killed*, that is, distributed; sometimes part is saved or *picked up*. See *Live Matter*.

Dead-line. (a) A line or mark, scratched on the bed of a flat-bed cylinder press, used as a guide in placing the chase and locking it up. If placed beyond this line, the form will be injured by the grippers. (b) The latest date at which copy can be accepted for any issue of a publication.

Dead Horse. Work charged and paid for before being done. When a journeyman performs work for which he has already been paid he is working for a dead horse.

Deaf-mute Alphabet. See *Dactylology*.

D. C., d. c. On newspapers, the abbreviation for double-column, meaning that copy so marked is to be set twice the width of one column; abbreviation for the paper size *double cap*.

Decalcomania. A process of transferring printed designs to glass, marble, etc. The decoration of glassware or porcelain by gumming pictures on it. It consists usually in simply gumming the paper or other film bearing the colored picture on to the object and then removing the paper with warm water, the colored picture remaining.

Deck. The feed-board on cylinder presses.

Deckle, Deckle Strap. On the paper-making mold, the frame or border, usually of wood, which confines the paper pulp. A strap on either side of the paper-making machine which limits the flow of the pulp and also determines the contour of the edge of the paper web. See *Deckle Edge*.

Deckle Edge. The untrimmed feather edge of a sheet of paper formed where the pulp flows against the deckle. Hand-made paper has four deckle edges; machine-made paper has two. The retention of an untrimmed deckle-edge is esteemed by booklovers a desirable feature in certain kinds of choice books and brochures made in limited editions. The deckle rarely appears at the top of the page, but usually at the fore-edge or at the bottom, or, if the fold permits, at both fore-edge and bottom.

Dedication. A note following the title page of a book, in which the author inscribes the work to a particular person, or persons, as a mark of respect or affection. The modern dedication is usually brief, set in plain roman capitals, with sometimes a line of black-letter, and occupies the middle of the first page of a leaf.

Deep Etching. In photo-engraving, additional etching made necessary to secure proper printing depth, where this cannot be accomplished by routing, as in places where dense black lines are used, or where line negatives and halftone negatives are combined in the same plate. See *Etching*.

Deep Fold. A form of deep pages imposed so that the long dimension of each page will be from top to bottom when the printed sheet is folded, in distinction from a broad fold, in which the short dimension of the page will be at the sides. See *Broad Fold*.

Deep Page. Said of a printed page which is longer from top to bottom than it is across sideways; that is, an upright page, the usual shape of a book page, in distinction from a broad or oblong page, in which the width is greater than the depth.

Dele (*pron. de'le*). A proofreader's mark (S) directing the compositor to take out something from the type. The mark is made in a variety of forms, representing the written letter *d*, the initial of the Latin word *deleo*, to erase. Delete (*pron. de-leet'*) is another form of the term having a similar significance. See *Proofreader's Marks*.

Delivery Board. The table on a press where sheets are placed after printing.

De-ink. To remove ink from type, forms, rollers, or anything used in the print-shop; removing ink from newspapers or other printed sheets by a chemical process is called de-inking.

De Luxe. Said of a book or other article made in a style more luxurious than usual. De luxe edition, an edition of a book or pamphlet, usually in small quantity, made with special care, using good paper and in fine binding; literally an edition of luxury.

Demy (*pron. de-my'*). A standard size of flat writing paper, 16 x 21 inches.

Dentelle. A fine-tooled border resembling lace-work used in decorating book covers. Dentelle is a style of angular decoration which is in its simplest form like a row of teeth and in more elaborate form is like the points of point-lace.

Depreciation. The material and machinery in a printing plant loses in value each year: all of it by reason of use, some through disuse, and some because it is superseded by newer inventions, or on account of change in fashion. For this depreciation in value there should be an allowance made every year at stated periods, and a percentage added to the charges for doing work in order to replace the equipment worn out or discarded. Some kinds of material depreciate quicker than others, and consequently should have a proportionately larger percentage charge. It may sometimes seem a difficult matter to determine just what the rate of depreciation should be, but it can be ascertained by a careful record of all items of expenditure and receipts, changes in machinery and other equipment, etc. The United Typothetae of America Cost Commission recommends a yearly depreciation of 25% of the original cost on type, and 10% of the original cost on machinery.

Descending Letters. Letters whose lower strokes fall below the base-line of round or short letters like o, a, n, e, r, etc. See *Descender*.

Descender. That part of a type character which descends or projects below the main body of the lower-case letters. The letters g, j, p, q, and y have descenders.

Detergent. A prepared wash for cleaning type, etc.

Develop. In photography, the operation of bringing out the image on the photographic plate through chemical action by flowing it with a solution or "developer." There are many different formulae for developers, but one of the simplest used for wet-plates in photo-engraving, consists of iron sulphate, acetic acid, and distilled water.

Devil. The errand boy or youngest apprentice in a printing office. Various accounts have been given of the origin of the term. One is that the early printer was supposed by superstitious persons to produce copies from manuscript with marvelous rapidity by the aid of the black art, whence the devil was deemed his natural assistant, and this word was applied to printers' apprentices. Another story is that the term originated with Aldus Manutius, who, when he commenced the printing business in Venice, had in his employ, or rather in his possession, a small negro boy, who became known over the city as the "little black devil," a superstition having been circulated that Aldus was invoking the aid of the black art, and that the negro was the embodiment of Satan.

Devil's Tail. The lever of a hand press.

De Vinne (*pron.* de vin'nie). A name given to a series of bold-faced roman type which was popular for about twenty-five years. So named in compliment to the late Theodore L. De Vinne, the well-known New York printer.

Dexter Automatic Feeder. This machine is designed to obtain the highest speed, with greatest accuracy, in feeding a saddle-stitched product where the thickness of the book to be stitched does not exceed

one-quarter inch. Its construction makes it not only a stitching machine but a gathering machine as well. Ordinarily the machine consists of two carriers, therefore permitting of the automatic stitching of booklets containing two signatures or one signature and cover. Additional carriers can be placed on the machine up to eight or ten, and if the work consisted of five signatures and cover, six hand feeders would lay the signatures on the traveling saddle and when the book passed the last operator who places on the cover, it is ready for stitching. The automatic stitcher contains a caliper which detects the omission of a signature or the placing of one signature too many in the completed job. This does not stop the machine but it throws out of operation the stitching mechanism and delivers this incomplete book to the opposite side of the regular delivery. These stitchers may be equipped with as many as ten stitcher heads, so that small booklet work in gangs may be folded two or more up.

Dexter Bundling Press. The bundling press is commonly used in binderies for compressing signatures of books and magazines in tight bundles so that they can be tied between boards of the same size and put away for storage, to be bound up in the regular way as needed. There are two kinds of machines now being made. One is known as the Hand-power Bundler which gives a pressure of approximately two tons, and the other Power Bundler, usually operated electrically, which gives a greater pressure and which will bundle considerably more stock in a day than the hand-power machine.

Dexter Folders. These folders are of three kinds, covering the range of requirements for circular and commercial folding. The simplest type of job folder from the beginning of the folding machine industry, nearly forty years ago, was the right-angle machine; that is, the folder in which all of the folding rollers are at right angles to each other. The standardized Dexter Jobbers, which are made in four basic sets of folding rollers, have all of these rollers placed at right angles to each other, making all folds, from four to thirty-two pages. To this folder may be added other sets of folding rollers, one of these being a set parallel to the second fold, known as the Parallel 16, and the other a set parallel to the third fold, known as the Parallel 32, for producing sixteen and thirty-two-page work in gangs of two or more, to be folded at each operation of the machine. The Double Sixteen folder, commonly used in book offices and for the folding of magazines with large circulation, is really a combination of two job folders in one. It takes a large sheet consisting of thirty-two pages. The sheet is cut in two at the first fold, and after this fold there follow two right-angle folds on each of these sections, delivering two sixteen-page signatures, each of which may be dropped into separate packer boxes, where the signatures may be inserted, delivering one thirty-two. An extension of the Double-Sixteen folder is the addition of a fourth right-angle roller set, which doubles up the product, giving two 32-page signatures. The Dexter Quad folder is used almost exclusively in book offices, although some of them, in the larger sizes, have been used on magazines

with a page size not greater than 6 x 9 inches. The Quad folder takes its name from the fact that it delivers four separate 16-page signatures in different packer boxes, or it will, by a simple adjustment, deliver two 32-page signatures, each consisting of two 16-page signatures inserted one into the other. A very large proportion of all books are sewed in 16-page signatures, hence the necessity for the Quad folder to get maximum production on 16-page work where the paper is inclined to be heavy as in the case of fiction, where bulk is desirable. The operation of sewing is very difficult if not impossible in some cases where the paper is thick and the signatures consist of 32 pages. There are manufactured Quad folders of the three right-angle type and two right-angles followed by a parallel, the latter being the commonest type used in large book-printing houses.

Dextrin. An adhesive substance resembling gum arabic, obtained from the sap of plants, etc., for use in sizing paper, for gumming stamps, labels, and in bookbinding. Also made artificially.

Diacritical Mark. A sign attached to a letter or character to indicate the sound it represents, like accents á è î ò ü ç and other marks used in dictionaries.

Diagonal Indentation. An arrangement of the lines of type overlapped in the manner shown in the panel.

Diagonally indented lines
are used in news headings
and advertising display.

Diamond. The smallest size of type usually cast, equal to about 4½ points; not often used, except for notes and references in small books. See *Sizes of Type*.

Diary. A memorandum book arranged to give a space for each day of the week, month, or year.

Dictionary. A book containing the words of any language, or words employed in any art, science, or branch of knowledge, arranged alphabetically, with the spelling, definitions, and other explanatory or illustrative features.

Die. A small block with a design or letters engraved in it, for impressing a softer substance; a hard, sharp-edge shaper or device for stamping or cutting out a design.

Die-out. The operation of stamping or cutting with a die.

Dieresis. Two dots placed over the second of two adjacent vowels to denote that they are to be pronounced separately, like coëxist, coöperate, etc.

Die Sinking. The process of making dies; die cutting.

Die Stamping. Frequently employed for envelopes, cards, etc., the printing, or stamping, being done in relief by means of engraved intaglio dies. The die is usually a piece of steel having the letters or

design cut in it. The engraved parts are filled with ink, the paper placed over the die, and the stamping done by means of a counter die of a hardened plastic substance which embosses the sheet by forcing the paper into the engraved parts, the result being a print with the letters or design slightly raised above the surface of the paper. While work of this kind is usually done by simple hand-machine methods, there are now powerful mechanically operated die presses used.

Die Sunk. A depressed panel produced by the heavy application of a heated block or die, on suitable paper.

Diphthong. Two vowels joined together, æ, œ, chiefly in words from the Latin. Modern usage often discards them, as in Caesar for Cæsar, esthetic for æsthetic.

Diptych. A double tablet, made of two tablets of wood, metal, or ivory, hinged together and covered with wax on the inside, upon which Greeks and Romans wrote with a stylus. By extension, in ecclesiastical history, a list of dignitaries, holy persons, etc., from the tablets upon which the names were inscribed.

Direct-by-Mail Advertising. A term used to denote a class of printed advertising matter intended to be sent by mail to classified lists of persons or business firms. This kind of advertising matter includes letters, circulars, cards, invitations, notices, booklets, catalogs, samples of goods, or other mediums. The term is used to distinguish matter prepared for this purpose from general newspaper, periodical, billboard, or other public announcements.

Direct Halftone. A halftone plate made by exposing the article itself, and not a photograph or drawing, in front of the screened photographic plate. See *Halftone*.

Direct Photography. In photo-engraving, the method of photographing objects direct instead of from a photograph, drawing, or other illustration. This method is frequently used in making plates of jewelry, cutlery, shoes, linens, textiles, etc. See *Direct Halftone*.

Dirty Proof. A printer's proof containing many errors.

Direction-word. See *Catch-word*.

Dis. Abbreviation for the word distribute.

Dished. A defect in an electrotype or other printing surface, in which the center is lower than the edge.

Disk Ruling Machine. A ruling machine which used revolving disks instead of steel pens for ruling the lines on the paper. See *Ruling Machine*.

Disk. A flat, circular metal plate, such as is used on the platen job presses, upon which ink is distributed. A double disk has the central portion separate from the outside so that the two parts may turn in

opposite directions by means of a cogwheel below the spindle upon which the whole rotates. Another style is the twin disk, two disks side by side, for distributing ink to print two colors at one impression.

Display. Lettering of any kind in which various sizes and faces are used, like advertisements, title pages, catalogs, etc., in distinction from straight matter.

Display Line. A large line in a page.

Display Type. A general term meaning the larger and heavier type faces designed for headings, advertisements, etc., as distinguished from the types used for plain reading matter; commonly put up by foundries in smaller fonts than body type.

Distemper. (a) A preparation of opaque or body colors, in which the pigments are tempered or diluted with weak glue or size instead of oil, usually for scene painting, or for walls and ceilings of rooms. Block-book printing in early times was done in distemper. (b) A painting or a print made with this preparation.

Distributing. (a) Putting types back in their respective cases and boxes after use. (b) In presswork, the uniform spreading of ink on the face of the printing form.

Distributing Roller. On the cylinder and some small presses, the roller which moves diagonally and endways back and forth over the inking plate or other rollers to distribute the ink evenly; the distributor, the vibrator.

Ditto Marks ("). In writing or composition, two inverted commas or two short vertical strokes are used to indicate a repetition. The abbreviation is *Do*.

Divinity Edges. See *Circuit Edges*.

Division of Words. The separation of words which will not entirely come into the line of type but must have parts turned over to the next line. This is a necessary custom in order to make lines of equal length and to avoid as much as possible unequal spacing between the words. Rules affecting the subject are not always uniform; the customs of different composing rooms and the wishes of different authors and proofreaders add to the perplexities of the compositor. Words are properly divided only on syllables, but in many words that have a number of syllables there may be doubt as to the best place to make the separation. It is necessary first to know the proper pronunciation of words and also some of the rules for dividing them into syllables. An accepted rule is to divide a word, when possible, on its chief accented syllable, like *con-sid-er-able*. When a division like this makes bad spacing, the division may be on one of the other syllables, *con-sider-able* or *con-sid-er-able*. But while a word may consist of several syllables it does not follow that a separation between any of them is a proper typographic division. In careful work the rule is to avoid turning over a syllable of two letters, like *er*, *es*, *il*, except in very narrow

columns, and never to turn over a final syllable of one letter, like *cit-y*. Also to avoid separating words of four letters, even if they consist of two distinct syllables, like *al-so*, *up-on*. Long words of one syllable, like *strength*, *drowned*, should not be divided. There are many other rules made to apply in special cases, which the young compositor should study as he meets them in his work. The aim should be to avoid division which tends unnecessarily to confuse, or mutilate the usual appearance of a word and thus interfere with its ready understanding by the reader. The following are some words which should not be divided: through, nothing, heaven, power, prayer, often, soften, liken, listen, faster, finer, flower, given, verses, houses, proven, eleven, thrasher, or similar words, in which the last syllable has but two letters; tough, laugh, dough, though, cough, trough, draught, would, could, strength, lengthy, and many similar words of one syllable (sometimes two) should not be divided.

Doctor. In the mechanical arts this word is applied to a number of devices for specific purposes. (a) An auxiliary or donkey engine. (b) A boiler feed-pump. (c) A knife or long blade scraping across the face of a roller or cylinder to spread or to remove color or ink, as in a machine, rotogravure press, etc., and on a paper-making calender roll, to scrape off dirt. (d) An electric brush carrying a plating solution. (e) An implement for soldering. (f) A support or backstay in a lathe, etc. (g) A greasy fluid for strengthening work on a lithographic stone.

Dodger. A small hand-bill, often printed on a bright colored paper, formerly used for theatrical and other advertising to be given out on the street.

Dog-eared. Said of a book, portfolio, or similar article having the corners of the leaves turned down and soiled by careless and long continued usage.

Dollar Mark (\$). Representing amounts of money in America. It is placed close to the figures, without spacing, thus \$25.

Donatus. An old-time Latin grammar, which derives its name from its author, a Roman of the fourth century. It was often printed from wood blocks about the time of the invention of printing, and is frequently referred to in historical and bibliographical literature.

Dope. A word of many meanings (said to come from Dutch *doop*, sauce; *doopen*, to dip). Used as a verb, dope means to stupefy or to exhilarate, as with a drug; to plan, scheme, or study, as to decipher difficult copy or study instructions. As a noun, dope means a liquid, paste, or other substance used to produce an effect; a drug or dose; as ink dope, that is, something mixed with ink to make it work. Also information upon some specific subject; as advertising dope, to talk or write about advertising. Dope-book, a collection of horseracing information, records, etc. Dope-fiend, a habitual user of a drug. In prevailing slang the word dope is improperly used to mean many things

by illiterate or lazy persons who do not know the right word to express their thought, and by others who employ the word to express a meaningless thought.

Dot Leaders. Those cast with dots thus, in distinction from hyphen leaders ----- . See *Leaders*.

Dotted Rule. Brass rules with dotted face, for blank work, to serve as a guide for writing on -----.

Double. The term double is applied in many cases before other words, to denote double quantities, sizes, or qualities, such as double pica, double frame, double demy, double cylinder, double letter, double rolling, double rule, etc.

Double (*pron.* du-blay'). The ornamental inside of the cover of a book, made with tooled leather, silk, or other material. Double binding, when a book cover is finished with leather inside and outside. Also termed doublure.

Double Cap. A size of printing paper, 17 x 28 inches in dimension.

Double Character. A double type; a diphthong or ligature of two letters on one type body.

Double Crown. A non-standard size of paper, 19 x 30 inches in the United States, and 20 x 30 inches in England.

Double English. The old name for a size of type, equivalent to about 28-point in the American point system.

Double Dagger. (§) A reference mark used in printing and writing. See *Reference Marks*.

Double Folio. A size of printing paper 22 x 34 inches. See *Folio*.

Double Medium. A size of printing paper, 24 x 38 inches.

Double Paragon. The name of an old size of type, about 40-point in the point system.

Double Royal. A size of paper, 24 x 38 inches.

Double Letters. Diphthongs æ, œ, fi, ct, and others. See *Ligature*.

Double Rule. Brass rule having two lines of different thickness of face  in distinction from parallel rule,  having two lines of the same thickness.

Double Super Royal. A size of paper, 20 x 56, 28 x 40, in America, and in England, 27½ x 41 inches.

Double Truck, Double Spread. A double truck headline is one which extends entirely across two pages of a newspaper; a double-spread advertisement is one which fills two entire pages, both pages appearing as one unit; the term is also applied to any illustration or text matter which spreads across two pages.

Doublet. A repetition of a word or phrase made by mistake in composition; a double.

Doubletone Ink. Trade name for a class of inks which show a different hue when used in mass from that which they show when spread out in a diluted or thinner quality. Thus an ink which shows dense black when used in full color on a solid surface may show a secondary color or brownish-gray hue when it covers a stippled or broken printing surface, like a halftone, as if the printing had been done with two plates and different inks. The same theory is applied to colored inks, by means of which a variety of effects may be produced with a single printing. See *Duotone*, *Varishade*.

Down. In copymarking, when a capital letter should be small or lower-case, it is ordered "down" by drawing a line diagonally through it.

Drag. When the end of a sheet printed on a cylinder press does not print clear and sharp, because of not being held close to the cylinder, it is said to drag.

Dramatic Critic or Editor. On a newspaper or other publication a person who acts as theatrical critic and has charge of editing or writing news of drama, etc.

Drawing Paper. Usually hand-made of the best materials and well sized, for drawing and similar purposes.

Dragon's Blood. Any of several resinous substances, mostly dark red in color. It is used in powdered form in photo-engraving for etching line plates. Dragon's blood powder is brushed up against the slightly raised lines of the image or design on the metal plate from four sides, and "burned in," thus protecting these lines against the action of the etching solution or acid.

Drafting Paper. A fine, white or cream, hard-surfaced paper of good erasure quality to make drawings upon.

Draw-sheet. The sheet, drawn on over the make-ready on a press. See *Make-ready*.

Dressing the Form. Arranging the furniture and other material around the pages in a chase; particularly to do so in an orderly and workmanlike manner, in order to secure a good lockup. An English expression.

Drier (or Dryer). A substance added to ink, paint, or varnish to make it dry quicker. The oil or other medium in which a color pigment is mixed has in itself more or less drying property, and some colors of printing ink dry faster than others owing to the chemical nature of the pigment used. A drier may be added to the ink before it comes from the ink maker if it is known that the work requires a quick-drying ink; or it may be added by the pressman before or after the ink is distributed on the press. An ink that dries slowly can be made to dry a little

quicker by the addition of a gummy varnish or oil that has been boiled until its fatty matter has evaporated; but this gummy varnish is likely to change the consistency, color, or other qualities of the ink. The distinctive ingredient of a drier is a substance which acts as a conveyor of oxygen to the ink, thus hastening the hardening process as soon as the ink film is exposed to the air; and also it should do this without changing the other qualities of the ink, or at least, changing them as little as possible. Salts of manganese and lead, and some similar substances, produce this effect in high degree and they form the basis of driers in common use. These metallic compounds are dissolved and boiled in oil until they are thoroughly combined in the form of a liquid or a paste. They may also be in the form of a powder. Liquid driers and paste driers are the forms usually employed for printing inks, as they are convenient to handle and more readily combine with the ink. Japan driers for typographic inks are made of shellac or other resin, linseed oil, metallic oxides, and turpentine. Various other substances have been used as driers for printing inks—gelatin, white of egg, alum, dammar varnishes, etc., but these only serve in special cases.

Drilling. A stiff cotton cloth used by bookbinders.

Drive. In typefounding, after the engraver has cut a letter in soft steel, the punch is hardened until it has strength to penetrate copper. It is then punched into a flat, narrow bar of copper, making a reversed duplicate of the latter on the punch. This bar is a drive or strike, and when finished and adjusted for the mold it becomes a matrix.

Drive Out. To space words widely to fill the line and drive out a short word or syllable to the next line. In wide-leaded matter prefer to *drive out*; in solid matter to *take in* by thin-spacing.

Drop Folio. The page number placed at the bottom of the page, as on the first page of a chapter. See *Folio*.

Drop Guide. The feed guides on a cylinder press. See *Feed Guides*.

Drop Roll Folder. Describing a style of folding machine in which the sheets are fed under a roll that drops and carries them into the folding apparatus. See *Folding Machine*.

Drop Roller. A roller set in a movable frame, which alternates between two other rollers or surfaces, same as the ductor roller next to the ink fountain of a cylinder press. See *Ductor Roller*.

Drug Envelope. Trade name for a class of small envelopes such as are used by druggists for enclosing small articles, usually $1\frac{3}{4} \times 2\frac{7}{8}$ inches to $2\frac{3}{16} \times 3\frac{3}{8}$ inches, with a flap opening on the side. See *Envelope*.

Drum Cylinder Press. A printing machine in which the sheet of paper is carried to the impression on a large cylinder. Only part of the surface of the cylinder is used for the actual printing, the other part being blank and cut down, so that it will not touch the printing form on the bed. The bed goes forward and backward for each complete

revolution of the cylinder. The impression is made on the forward motion, and while the bed is returning for the next impression it passes under the cut-away portion of the cylinder. The early cylinder presses were of this general large-cylinder style, but they have been largely superseded by the two-revolution small-cylinder machines. See *Country Press*, *Cylinder Press*, *Two-revolution Press*.

Dry Color. Any dry coloring matter suitable for grinding or mixing in oil, water, or other medium, for printing or painting. Finely powdered pigments, applied with a brush or pad to sheets printed with varnish or sizing, are sometimes used to secure color with luster brighter than when the pigment is mixed with oil like ordinary printing ink.

Dry-plate. The ordinary sensitized glass plate used in photography. See *Wet-plate*.

Dry Point. (a) A sharp needle on a handle, used in engraving on metal plates, to cut into fine lines without acid or etching ground. (b) An intaglio engraving made in this manner. Dry-point engraving is where the subject is scratched with the needle on to the bare metal without the use of any ground. Etchings often have dry-point lines which have been added after the acid etching has taken place. The burr raised on the metal by the cutting is sometimes left to catch the printing ink, and produces a mezzotone effect of more or less deep tone; or the burr may be removed by burnishing, so that the lines will give a clear impression. See *Etching*.

Dry Pressing. To press out indentations made by type after printing, so that the printed sheet is perfectly smooth on the back. This is done in a strong screw or hydraulic press, the printed sheets, when dry, being placed between sheets of hard-rolled cardboard and subjected to great pressure. See *Hydraulic Press*, *Standing Press*.

Drying Rack. A rack or frame with shelves for holding printed sheets in small lots when they come from the press, to permit the ink to dry. Freshly printed sheets must be handled carefully to prevent the set-off of ink from one sheet to the back of another.

D-Roller Press. A style of press used for printing with intaglio copper and steel plates. See *Copperplate Engraving*.

Dubar. The trade name for a solution used for protecting lithographic plates or stones. It is a chemical solution and creates on the plate a film that is insoluble in lithographic solvents and that is resistant to the action of lithographic etching and counter-etching acids.

Ductor Roller. A fountain roller. An ink roller on a hinged frame, which supplies ink from the fountain to the distributing roller or the ink table of a printing machine. Colloquial term, duck roller.

Dull-finish Coated Paper. Paper which has been first treated with a smooth coating, and then with an additional coating to remove the gloss. See *Coated Paper*, *Paper*.

Dummy. A few pages or parts of a proposed book, pamphlet, or other work, put together so as to show in advance the plan, design, or arrangement to be followed; it may be sketched with pen or pencil, sample lines or pages printed, or proof-sheets mounted on it, the intent being to show how the work will be when completed. A dummy is now a necessary preliminary to all printed work of importance. In the workroom, a dummy should be prepared for every important work consisting of a number of pages, for the guidance of make-up, stoneman, pressman, and proofreader. See *Layout*.

Dump. The place in a composing room where dead matter is placed until it is needed for distribution; sometimes this may be a standing galley having partitions lined with brass or zinc, or a zinc-covered table or other frame. See *Bank*.

Duodecimo. A sheet folded to make twelve leaves, usually indicated as 12mo or 12°. It is smaller than octavo (8vo) and, like it, is of no fixed dimensions. See *Book Sizes*.

Duograph. Two halftone plates made from one copy, to be printed in black and one tint, or two shades of the same color, each plate being made with the screen at a different angle. *Duotype*, two halftones made from one copy and from the same negative, but etched differently. A two-color process.

Duotone Ink. Trade-marked name for a printing ink which shows two tones of color when printed by an engraving having a surface composed of both solid and stippled parts; similar to doubletone ink. "Duotone" is trade-marked by the Sigmund Ullman Co. See *Doubletone Ink*.

Dupe. Abbreviated form of duplicate, the extra proof taken of composition which is to be paid for by the piece. The *dupes* of a compositor's work are, at the end of the day or the week, pasted together and measured, and the charge therefor made at the stated price per thousand ems.

Duplex Paper. (a) Paper each side of which bears a different color. (b) A machine-finished paper which is highly glazed on one side and left rough on the other. (c) A paper plied with two layers of different colors or stocks.

Duplex Press. Said of a printing machine which prints both sides of the paper, the sheet going from one printing form to another at one feeding. The term is applied particularly to a style of newspaper perfecting press having two flat beds and two cylinders, the beds being stationary while the cylinders revolve back and forth over the printing forms. A special mechanism controls the web of paper, moving it along at each operation a length sufficient to form the sheet required for each copy, which is cut from the web when the printing is completed. In some machines the sheets are run into a folding attachment.

Duplicate. In electrotyping, the name given a working plate that is duplicated from a permanent reserve molder, or original plate. See *Molder* and *Worker*.

Duplicating Paper. Papers for use in duplicating work, as mimeographs, manifolds, etc.

Dust Cover. See *Jacket*.

Duster. In the paper-making industry, a dusting machine; an equipment of huge, hollow, meshed-wire drums provided with revolving blades for stirring up rags and sifting out the dirt.

Duplicator. In photography, a device that consists of a holder with a part of a disk of metal in it. The duplicator fits over the barrel of the lens and by turning it around, two separate pictures may be made with it, one on each side of the plate, or film, without having the dividing line show. The *Lassen Multiplex* enables one to make three separate pictures on the same plate, or film, yet all three are so perfectly blended together that it looks as if only a single exposure had been made.

Dutch Gold. Trade name for copper, brass, and bronze leaf, used for decorating, etc. It is an alloy of copper and zinc rolled into very thin sheets. See *Gold Leaf*.

Dutchman. A joke-name for a small piece of wood or toothpick driven into a part of a type form that is imperfectly justified, to make it tight. Its use is not creditable to the workmanship of the compositor.

Dwell. When the impression of a form on the press is at its maximum.

Ear. (a) A note or small panel on the sides of newspaper headings.
(b) The nib on the end of a composing stick.

Early Impression. Said of a print from an engraving; it is considered more valuable than the later impression when the plate has become worn. A first edition.

Ecclesiastical Signs. Symbols used in religious work, prayer books, church rituals, etc. The most common sign is the cross, the symbol of Christianity; this is in several forms, Greek **+**, Latin **†**, Maltese **✠**, St. Andrew's **✕**, and other variations. The response sign **R̄**, and the versicle **Ÿ**, are used in church service books, the former being used before the portions of liturgy said or sung by the congregation, and the latter before one of a series of short lines said alternately by minister and people.

Eclectic. Selected; said of magazines and books whose matter is selected and reprinted from other publications.

Edge-bolt. The uncut fold of the leaves in a bound book. See *Bolt*.

Edge-rolled. When the edges of a cover are lined or ornamented, blind or in color, with a roll or finishing tool.

Edition. The number of copies of a book, magazine, or newspaper printed at one time. See *Impression*.

Edition Binding. When books are bound in large numbers, as distinguished from single books or jobbing.

Edition de Luxe. See *De Luxe*.

Editor. The chief writer of a newspaper or other publication, who is responsible for its management or policy; the person who revises or prepares copy for publication.

Editorials. The articles in a newspaper or periodical which express the opinions of the editor; usually occupying a page or department by itself. In newspapers the editorials are usually in larger type than ordinary matter.

Ectypography. A process of etching in which the design is produced on the plate in relief instead of being incised or cut in.

Egg-and-Dart Border. An ornamental border having a series of alternate egg-shaped and dart-shaped forms, made in a number of variations; also called egg-and-anchor; egg-and-tongue. A common decorative motive for molding in architecture.

Egg-shell Finish. Said of a paper or cardboard having a firm, smooth, but not polished surface, resembling that of a smooth egg-shell.

Egyptian. This word was common thirty or forty years ago to describe some varieties of type faces in which the letters have thick stems and exaggerated serifs. A similar face was called French Clarendon by some typefounders. English printers give the name Egyptian to a narrow bold face.

Eidograph. An instrument for copying drawings on the same or different scale; a form of pantagraph.

Eighteens. A sheet folded into eighteen leaves, or thirty-six pages; octo-decimo or eighteen-mo. This is not often a desirable scheme of imposition for bookwork, as the sheet is difficult to fold. When printed sheetwise (in two forms) on paper 19 x 24 or 22 x 28 inches, this fold makes a leaf of good proportion and is convenient for small catalogs, price lists, etc. The pages may be laid in several ways, according to the manner in which the sheet is to be folded; it may be folded without cutting, or the pages laid so that the sheet will cut into a 24-page section and a 12-page section, to be inserted. Other variations can be ascertained by a little experimenting with folded sheets for any particular work.

Eights. Shop term, in imposition, for sheets of octavo.

Electricity in Paper. This causes the printer much trouble at times and under certain conditions. Electricity is generated in paper by friction or pressure during manufacture and remains there in static

or inert condition. The handling of the sheets and their passage through the press excites the electric charge, causing the sheets to stick together, to offset ink, to adhere to the press-table, and otherwise to become unwieldy. Weather conditions have much to do with the trouble, the cold dry atmosphere of winter tending to make it more difficult to get rid of the electrical activity, which passes off easier in the moist air of summer. In small quantities of paper it is easier to dissipate the magnetic influence than when the paper is in large bulk. Medium and light-weight, highly calendered and coated papers, when printed on cylinder presses, are often liable to be troublesome in delivering the sheets without offset. The delivering of the sheet alone is often a difficult problem regardless of whether or not there is an offset of ink. Thick paper does not usually give much trouble, the greatest difficulty occurring with thin, highly calendered paper. Various methods of overcoming the trouble have been devised, but few have been proved successful except under favorable conditions. Grounded wires with contact points to touch the sheet as it passes, placed near the cylinder or delivery table of the press, to draw off the electricity, have at times been effective; devices for keeping the air moist and hot, vapor pans, steam jets, etc., have sometimes been a remedy. Several patented methods and chemical dissipators have also been used more or less successfully.

The manner in which the difficulty with electricity in paper and textiles is overcome by a device known as the Chapman electric neutralizer is explained in the following extracts from a report on the subject: "Paper, wool, and similar substances are normally in a neutral electrical condition, or in other words, there is no manifestation of the presence of an electrical charge in them at all. Under the influence of friction, or pressure, the neutral condition is disturbed, and a difference of electrical potential is set up; positive or negative frictional or static electricity becoming manifest in the wool or paper, and the opposite in whatever produced the friction or pressure. The wool, paper, cotton, or silk being non-conductors of electricity, the charge, positive or negative as the case may be, remains bound or fixed. As positive or negative electricity always seeks to escape to earth, or, still more strongly, seeks to combine with a charge of the opposite kind, this force is imparted to the substance to which the charge is fixed. The charged material now possesses the property of attracting dust, thread, bits of lint or paper, or of strongly adhering to anything with which it comes in contact." The Chapman electric neutralizer, instead of attempting to lead away the electricity from the charged paper or other material through the medium of conductors connected to the earth, or through a hot and humid atmosphere, employs a method of neutralizing the static electricity by bringing about a combination of positive and negative charges. To do this, electrical energy is applied, a very small quantity, however, being sufficient. By means of a special transformer attached to the lighting or power supply wires on a nearby wall, an electric current is brought in limited quantity across the press

close to the paper after it leaves the cylinder and before it is laid on the receiving table. This current must be an alternating one, and if the supply wire does not furnish it a small generator may be installed for this purpose. This alternating current immediately neutralizes the electricity in the paper as the sheets pass over the zone of its influence and permits of their unhampered control.

Electro. Abbreviation of electrotype or electroplate.

Electrolytic Etching. A process of etching upon metal by electrochemical decomposition. A method in which no acid is used. An electric current passes through a special chemical solution which disintegrates the metal plate in much the same manner as the metal anode is disintegrated in an electroplating bath.

Electrotint. A mode of producing printing plates electrically by drawing on a flat surface with varnish or other non-conducting substances. The metal plate is then electroplated in order to produce a coating on the exposed parts of the metal, which produces an intaglio plate, this being used to cast a relief plate which becomes the printing surface.

Electrotype. A copper-faced duplicate, in one piece, made from a page or form of type, engraving, or other object which may be used to make a mold. The process for making an electrotype for printing purposes is as follows: The type is locked, usually in small forms, in a chase, each page having around it metal guards of the height of the type. An impression is then made in a sheet of wax having its surface dusted with blacklead or graphite. This wax mold is then suspended in an electrogalvanic bath in which copper is present in a state of solution; the copper, being affected by the electricity, leaves the solution and deposits itself in minute particles upon the face of the mold. When the copper deposit is thick enough it is stripped from the mold, and after covering with melted tin-foil, which acts as a solder, the copper shell is backed up with melted metal resembling type metal. This produces a plate with a copper face which is a duplicate of the original form or engraving. The finishing of the plate requires beating up the low places to an even level, correcting defective parts, shaving the surplus metal from the back to make it of uniform thickness, trimming the edges, and mounting on wood or otherwise to make the plate type-high. When it is intended to use electroplates on the modern patented bases, or blocks, they are simply shaved to a required thickness and the edges beveled so that they may be held by small hooks attached to the blocks. See *Block*, *Nickeltype*, *Steel-faced Electro*, *Stereotype*.

Electrotyped Letters. Types made by the electrotype process, as distinguished from cast types; mostly ornamental initials and special characters, which must first have been engraved to furnish a form for molding.

Electrum. Old name for gold dust or bronze powder.

Elephant. A size of writing paper, 23 x 28 inches; in England the sizes of elephant are: printing paper 23 x 30, writing paper 23 x 28, wrapping paper 24 x 34 inches.

Elision. Cutting out or suppression, as of a letter from a word pronounced in its abbreviated form: don't, o'er.

Elite Typewriter Type. A style of type used in printing to imitate typewritten sheets. It is smaller than the *pica* typewriter type; equivalent to 10-point under the point system.

Ellipsis. A mark indicating omission of a letter, word, sentence, or other portion of the original matter. Asterisks are sometimes used * * * * *, dashes — — — — —, and periods, , the latter being the approved form.

Elzevir. Relating to the Elzevirs, a famous family of printers and publishers in Amsterdam and Leyden during the seventeenth century, noted for their beautiful editions of classic literature. Elzevir edition, a book printed by the Elzevirs, now much prized by booklovers.

Elzevir Oldstyle. A type face which was revived by a Paris type-founder about fifty years ago, and became popular with publishers and printers of good taste. So called because modeled after type used by the Elzevirs. It is made in a series of sizes and in some variations of detail by different American and European typefounders and is considered a desirable letter for book and jobwork. Some varieties of this face are known as French Oldstyle.

Elzevir Floret. A little typographic flower or decoration, especially of the kind used by early printers.

Em. The square of a type body. So named because the letter M in early fonts (and sometimes in modern fonts), was usually cast on the square body. The common method of measuring type composition is by ems, the number of ems in a line being multiplied by the number of ems in the total length of the page or column. The term is applied in many ways to printing materials, as em dash—, em quad , em set, etc. See *Measuring Type Composition*.

Embossing. The process of impressing letters, figures, or designs in relief upon paper or other material. As done ordinarily in connection with printing, it involves the cutting of a metallic die, into the surface of which the design is made. See *Die*. The die being locked up for the press in the same manner as a type form, and the inking rollers removed, an impression is made upon a tympan covered with a plastic composition which, while soft, is forced into the die. This impression is then allowed to harden, and when properly trimmed it forms the counter die. The sheets to be embossed, which have already been printed flat with the desired colors, are then fed to gages which register the embossing die to the printed design. Various methods are employed for making the counter dies for embossing, but all methods require the engraved, stamped, or otherwise cut die for the design.

Printing from intaglio steel dies also produces an embossed impression. Printing for the blind is embossed with special types, without ink, and each page of such work requires a separate leaf. See *Braille*.

Embossed Imprint. An impression, usually without ink, of the printer's or maker's name embossed on a printed work. This is sometimes done where an imprint in ink would be too conspicuous. A small hand embossing punch is used for embossing a stationer's or dealer's name on the flap of envelopes, etc. This has the name or address sunk in the plate on one jaw and the same letters in relief on the opposite jaw, so that the paper will be embossed when the jaws are pressed together.

Embossed Paper. Paper upon which figures or designs have been raised or depressed, usually without ink, for fancy linings, box covers, etc. Embossed tissue, fancy tissue, similarly treated and used as a protecting cover for fine book illustrations, etc.

Embossing Plate. A plate cut or etched below its surface for producing a raised design on the surface of the sheet.

Embossing Press. A machine used largely in bookbinderies for impressing book cover designs, etc. Several styles are made, all of very strong and heavy construction. For embossing stationery, leather, and small work, a hand press having a screw similar to a letter press is used. See *Die Stamping*. Another style is like the ordinary platen printing press but very much stronger, and without inking rollers, to emboss without color. Bookbinders employ still another style of press, for stamping gold leaf on book covers. This requires heat, and the press is fitted with a gasburner for heating the die. See *Stamping Press*. A practice of embossing on the ordinary platen presses used for fine printing is not advised. The operation of forcing up a design on heavy paper requires many times greater power than for simply inking on the surface. An occasional small design, intelligently handled, may not subject a press to unnecessary strain, but large embossing blocks will usually demand power beyond the capacity of presses of this class. One heavy job may ruin a press, or at least render it unfit for good printing.

Embossing Process. Various substances are used for making counter dies or *forces* to emboss paper, card, and cover stock on printing presses. These substances include cardboard, vulcanized rubber, gutta percha, cement, and other material which may be softened, placed in position, and receive an impression from the engraved die, and when they become hard will retain the impress clearly for repeated impressions. The following process is recommended as a force which will not break down or shrink and will stand for many thousand impressions, if carefully prepared. Obtain the following materials: silicate of soda (liquid), yellow fire clay, LePage liquid glue, three pulp boards, and three pieces of French folio paper. Sift the fire clay through a fine sieve of coarse muslin. Prepare the die by mounting on a metal base, type-high. It can be glued on by putting a tissue between the

die and base and allowing it to dry thoroughly. Then lock the die solidly in a chase and place in the press, having removed the inking rollers. Glue a sheet of the pulp board on the platen, having the board large enough to hold the sheet to be embossed, together with the feed guides. Rub down all lumps carefully, then take an impression and, after this, glue the second pulp board on. Take another impression and bevel off the edges of this second board about a sixteenth of an inch less than the die impression. Now glue the third pulp board on and run for twenty-five impressions to set the impression on the board solidly. Trim the third pulp board closely around the design to be embossed, beveling the edges carefully. Next mix the fire clay with the silicate of soda to a consistency of putty and spread this on the pulp board with a palette knife. Lay over this a piece of French folio, and use two or three pieces of the folio to take three or four impressions. Trim off the surplus putty from the edges at once, and run twelve or fifteen impressions. Then set the gages to register the sheet. This counter die will harden in a very short time sufficiently to emboss paper. For heavy cover or card, let it dry an hour or more. There are several compounds on the market, and also a number of patented embossing processes requiring special apparatus and material.

Emerald. A size of type common in England, larger than nonpareil and smaller than minion, or about 6½-point. Formerly known in this country as *minionette*.

Emperor. A non-standard size of paper, 40 x 60 inches in the United States and 48 x 72 in England.

Empty Case. A case without sorts or letters which are needed to compose the line; it may have other letters, but is empty of those required to set the desired line.

Emptying the Stick. Lifting the lines of type from the composing stick to the galley.

En. One-half the width of an em body. In England the en is the unit for measuring type composition, instead of the em, as in this country.

En Dash. See *Dashes*.

Enamel. In photo-engraving, an emulsion consisting of bichromated glue or albumen, used for coating and sensitizing metal plates.

Enameled Paper. Paper with a specially prepared surface made by a coating of clay, glue, or other substance, pressed smooth by hot rollers under pressure; used for fine engravings, pamphlet covers, etc. An enameled surface may often be made on only one side of the sheet, the other side being left with ordinary finish. Similar to plate paper.

End a Break. In typesetting, to fill out the last line of a paragraph with quads; to quad out; opposite of end even.

End Even. To finish copy even at the end of a line of type, without blank, or regard to paragraph. A practice formerly common in

newspaper offices, where it was necessary to divide copy for short takes for hand composition. When the division came in the middle of a sentence the compositor was required to make his take end even, so as to join without a break the words of the take which followed.

End Papers. The paper placed at the front and back of a bound book; one half of the folded sheet is pasted to the cover, the other to the next white sheet, unless it is specially made paper. End papers are often of ornamental patterns and special or significant designs. A paper made especially for this purpose is stronger and contains more sizing than common writing paper, so that it may give strength to the binding and furnish fly leaves which may be written on with ink.

Engine-sized. When paper is made from pulp sized in the beating engine, in distinction from hand-sized or tub-sized paper, which is sized after the sheet is formed.

English. A size of type next larger than pica, or about 14-point. See *Type Sizes*.

English Finish Paper. A special dull yet smooth-finished machine-made and calendered book paper, with an even surface; is soft, pliable, usually of good color, and used largely in standard books of history, biography, music, etc., being well adapted to fine line plates and diagrams.

English Letter. Sometimes used to mean Old English, or black-letter. See *Old English*.

Engraver's Old English. A well-known style of text-letter type, made in several series—regular, bold, and open face; it resembles the faces used by copperplate engravers.

Engraver's Metal. An alloy of tin, antimony, and lead, mounted on a block similar to an electroplate, on which an engraving can be readily cut; used for color plates, tinted backgrounds, etc.

Engraver's Proof. A careful impression of an engraving made on fine paper with good ink, furnished by the engraver to show the excellence of his work; usually better than later impressions by the printer. The engraver's proof is commonly made on a hand press with the engraved plate resting on a solid metal base, the inking done with a hand roller, repeatedly applied, with high-grade ink, and the sheet taken from the plate with deliberate care. In comparison with the same plate mounted on a wooden base, perhaps locked up with type and other material which prevent it from remaining solidly on the bed, the higher speed in printing, and the consequent necessary modification in consistency or quality of ink, it may be readily understood why the standard set by the engraver's proof is difficult of attainment by the usual methods of machine presswork.

Engraved Invitation. The term engraved in this sense, as applied to invitations, cards, etc., is understood as meaning that the work was printed by an intaglio copper or steel plate. See *Copperplate Engraving*.

Engraving. (a) The art or process of making letters or designs on wood, metal, or other substances, by cutting or etching, for the purpose of printing or stamping on paper or other material. Closely related to typography in modern practice are wood engravings, line etchings, and halftone etchings. Engravings of these kinds are in relief, and when made on blocks which bring their surface to the height of type, they may be printed in the same forms with type, or in separate forms, on ordinary typographic presses. The woodcut is the oldest style of engraving, but because of the slow hand work and the greater cost, it has been largely superseded by the zinc line etching and the copper halftone. The latter two styles of engraving are similar in their basic operations, that is, photographing or transferring the picture to a prepared ground on the surface of a metallic plate and the etching of the picture on this surface by means of an acid. See *Etching*, *Halftone*, *Line Plate*, *Wood Engraving*. Other common forms of engraving are the intaglio copper and steel plates, made by several methods—hand work, machine work, and acid etching—and printed by various kinds of machines, as described elsewhere under their several headings. (b) An engraved plate, or an impression made from an engraved plate. (c) An engraved inscription.

Engross. To write or copy in a bold round hand, or in ornamental characters, as for resolutions, diplomas, etc.

Envelope. A paper cover for a letter or other document, and for many other purposes. Envelopes are made in a number of sizes from wood and rag stock, manila, kraft, and other papers, in wove, laid, and linen finishes. The paper known as white wove is generally used for business envelopes. The more common kinds are commercial, official catalog, pay, drug, and other trade names. The official sizes are about 9 to 11 inches long, by 4 to 4¾ inches wide; commercial sizes are the most generally used, 6 to 7 inches long, by 3½ to 4 inches wide; pay envelopes are smaller; drug envelopes used by apothecaries are still smaller. Besides these, though not in as large quantities, envelopes are made for innumerable other purposes. Some envelopes are clothlined for greater security, others are colored inside to make thin paper opaque. They are usually packed in boxes of 250, 500, or 1000 envelopes. Stamped envelopes are furnished by the Government in common sizes; these have the postage stamp printed on the corner and are furnished at a very low cost. Ordinarily the printing of envelopes is not very desirable work, partly because of the low prices and also because of the difficulty of printing on the face of the sheet that has overlapping gummed edges on the back. What are called high-cut envelopes (that is, the back sheet under the flap being cut high so as to bring it near the edge of the envelope), present less trouble to the pressman in printing. Envelopes which have elaborate designs or engravings covering a large part of their face, to be printed satisfactorily, should be done before the sheet is folded and gummed; for this

purpose they may be obtained flat from the makers, and after printing returned for gumming and folding. See *Clasp Envelope*, *Outlook Envelope*.

Envelope Corner Card. The printed address and name of the firm or person using the envelope. It is usually placed in the upper left-hand corner, but sometimes on the back of the envelope.

Envelope Enclosure. See *Envelope Stuffer*.

Envelope Sizes. In recent years there has been a constant demand for simplification and standardization of paper sizes, in order to reduce the cost of fine printing. This would naturally bring about a simplification of articles made from paper sheets, as envelopes, booklets, etc. The committee on simplification of paper sizes appointed by the U. S. Bureau of Standards, has recommended the following envelope sizes: $3\frac{5}{8} \times 6\frac{3}{4}$, $4 \times 5\frac{5}{8}$, $4\frac{3}{4} \times 6\frac{1}{2}$, $4\frac{1}{4} \times 9\frac{3}{8}$, $5\frac{1}{2} \times 8\frac{1}{8}$, $5\frac{3}{4} \times 8\frac{7}{8}$, and $6\frac{1}{4} \times 9\frac{5}{8}$ inches, which will fit the seven standard booklet and folder sizes: $3\frac{1}{2} \times 6\frac{1}{4}$, $3\frac{3}{4} \times 5\frac{1}{8}$, $4\frac{1}{2} \times 6$, $4 \times 9\frac{1}{8}$, $5\frac{1}{4} \times 7\frac{3}{8}$, $5\frac{1}{2} \times 8\frac{3}{8}$, $6 \times 9\frac{1}{8}$. All these sizes can be cut from four standard paper sheet sizes: 26×29 , 25×38 , 32×44 , $35 \times 45\frac{1}{2}$ inches.

Envelope Stuffer. Any printed piece, as a small circular which is enclosed with letters in an envelope.

E. O. D. Abbreviation for "every other day," sometimes at the bottom of newspaper advertisements. See *Blind Date*.

Eosine. A chemical obtained by the action of bromine on fluorescein, used largely as a dyestuff. In ink manufacture, one of the water-soluble dyes for making pink lakes and red lakes.

Equal Mark. An arithmetical sign $=$. In the absence of the proper type the reference mark $\parallel$ turned sideways may be used.

Equivalent Weights of Paper. The difference in weight between quantities of the same kind of paper in two different sizes of sheet. If a ream of paper in sheets of a given size weighs 70 pounds, another ream of the same paper in sheets of a larger size will weigh more than 70 pounds. For example: A book has been printed on stock 25×38 inches, weighing 70 pounds to the ream; it is desired to print another book on the same kind of paper but in sheets 28×42 inches. What should be the weight of the larger size per ream? Multiply the dimensions to ascertain the number of square inches in a sheet of each size, then apply the arithmetical rule of proportion:

$$25 \times 38 : 28 \times 42 :: 70 : 86\frac{2}{3}$$

When there is much computation of this kind to be done, a prepared table of equivalent weights is serviceable, saving the time necessary to work out each problem. As weights of paper in ream lots are computed only approximately, fractions of the pound are omitted. The common basis of weights for book paper is the standard size of 25×38 inches; that is, printers and papermen referring to paper of a given weight usually mean that weight in a size 25×38 inches. A standard size of writing paper is 17×22 inches. See *Substance Numbers of Paper*.

Table of Substance Weights of Paper

Size				Weight									
22	x	32	22	26	30	34	37	45	52	60	67	74	89
24	x	36	27	32	36	41	45	55	64	73	82	91	109
25	x	38	30	35	40	45	50	60	70	80	90	100	120
26	x	29	24	28	32	36	40	48	56	64	72	80	95
26	x	40	33	38	44	49	55	66	76	88	98	110	131
28	x	42	37	43	50	56	62	74	86	99	111	124	148
28	x	44	39	45	52	58	65	78	91	104	116	130	155
29	x	52	48	56	63	71	79	95	111	127	143	159	190
30½	x	41	40	46	53	59	66	79	92	105	119	132	158
32	x	44	44	52	59	67	74	89	104	119	133	148	178
33	x	46	48	56	64	72	80	96	112	128	144	160	192
34	x	44	47	55	63	71	79	95	110	126	142	157	189
35	x	45	50	58	66	75	83	100	116	132	149	166	199
36	x	48	55	64	73	82	91	109	127	146	164	182	218
38	x	50	60	70	80	90	100	120	140	160	180	200	240
41	x	61	79	92	105	118	132	158	184	211	237	263	316
42	x	56	74	87	99	111	124	149	173	198	223	248	297
44	x	56	78	91	104	117	130	156	182	207	233	259	311
44	x	64	88	104	118	134	148	178	208	238	266	296	356

Errata. A list of errors and corrections in a book which are of sufficient importance to be called to the attention of the reader; sometimes inserted at the end of the book, in other cases at the beginning; or on a slip tipped in beside the pages containing the error. Modern practice makes the need for errata pages less common than formerly.

Error. Any kind of deviation from correctness in composition, drawing, etc.

Esparto. A paper-making fiber obtained from a grass growing in countries around the Mediterranean. The pulp is made in a manner somewhat similar to rag and wood pulps, and is used extensively in Europe, but rarely in America.

Estimating. To printers, *estimating* means to calculate or compute from the best information at hand the value or worth of an order of printing. It is always an important feature of a printer's work. Printing is a business of many details, and since any order may require many operations, it is necessary to analyze every order and determine the particular operations that are required, and then, recognizing the factors that determine production, estimate from scientifically classified and accurately compiled production records the average production time for each operation and the necessary amount of material. Up to this point, estimating is the making of a production layout for the manufacturing department. By extending the average production time at a predetermined hour rate and the units of materials at their proper rate, the value or worth of each operation and each material may be determined. The total of these items is the total value or worth of the order.

Et Cetera. A phrase from the Latin, meaning *and other things*, to indicate others of a kind, class, or the like, to be inferred from those already given. Usually abbreviated etc., &c., or ꝑc. The character

& is a ligature of the combination of the letters *e* and *t*, (Latin *and*). In the old-style italic these letters may be distinctly seen, although in common modern forms they are scarcely recognizable. A repetition, like etc., etc., or &c., &c., sometimes made to fill up space, is unnecessary and should be avoided.

Etching. (*a*) A method of engraving on metal, glass, or similar substance by means of lines or dots eaten in or corroded by means of strong acid. There are several methods employed. The basic method is this: The polished side of the metal is covered with a thin wax composition termed the etching ground. Upon this ground the subject is drawn with a steel point called the etching needle, which, cutting through the ground, lays the metal bare. When the plate is immersed in acid the bare lines are eaten or etched by the acid. The ground is then removed and ink is applied to the plate surface, then the ink is rubbed off the upper surface except where it has entered the etched lines. The plate is then covered with paper and put under pressure between revolving cylinders or rollers. By this process the ink is drawn out of the lines and transferred to the paper. Etching with an acid is also employed in engraving relief line plates and halftones. See *Halftone*, *Process Engraving*. (*b*) A print made from an etched plate. (*c*) As an adjective the word etching describes materials and methods used in the process: etching ground, etching needle, etc. Etching tub, a large dish containing acid in which an etcher immerses the plate.

Etching Machine. A modern contrivance for the etching of plates in photo-mechanical engraving.

Even Folio. The page number of the left-hand pages, 2, 4, etc.; the odd folio is the number on the right-hand page.

Excelsior. A size of type little used, one-half the size of brevier, or about 4-point.

Exchange. A newspaper or magazine sent to the office of another publication in exchange. An exchange editor or reader is one whose duty it is to look over the other journals sent to his office, for the purpose of culling matters of interest or comment for his own journal. The abbreviation *Ex.* placed at the end of a story or article in a newspaper means that the matter has been copied from another periodical.

Exclamation Point (!). The origin of this mark is said to be the Latin word *Io*, joy, the letters of which were placed vertically $\begin{smallmatrix} I \\ o \end{smallmatrix}$; later the *o* became a mere dot.

Ex Libris. A book-plate or label placed inside the cover of a book to indicate ownership. So called from the custom of placing on the label the Latin words *ex libris* (from the books) and the owner's name. See *Book-plate*.

Expanded. Said of a type face which has been enlarged in height and width beyond the normal size for a given body.

Exposure. In photography, the length of time that the shutter or diaphragm in the camera remains open, in order to admit light for reflecting the image upon the sensitized plate, or surface. Exposures are of several kinds, instantaneous, time, bulb, automatic, etc.

Exposure-Meter. See *Actinometer*.

Expurgated Edition. An edition of a book or publication in which offensive or objectionable words or expressions that appeared have been omitted.

Extended. A term applied to faces of type made extra broad. **Extended Roman: EXTENDED.** Extended and expanded are terms which appear to be used without distinction to describe faces made wider than the normal shapes.

Extension Cover. On booklets, pamphlets, and catalogs, a paper cover which extends beyond the outer edges of the inside pages, in distinction of a cover which is *trimmed flush* with the inside pages.

Extension Front Cabinet. A case cabinet in which the runs upon which the cases slide back and forth extend in front of the cases when they are pushed back in the case. This front extension of the runs allows a case to be pulled out clear of the case above it, so that the compositor may reach all the boxes freely while the case is still resting in the rack. It also allows another case from above or below to be temporarily placed in front of another at a convenient height—a desirable feature for cabinets and case racks in a job composing room.

Extra. An edition of a newspaper following the first regular edition of the day.

Extra Binding. Said of books sewed and bound in superior manner, the work being done by hand.

Extra Cloth. Used for bookbindings, in plain finish and a variety of patterns; the cloth is well covered with color, concealing the weave and giving a solid color effect.

Extra Condensed. Said of a type face which has been compressed very thin sideways: **Extra Condensed Gothic.** A type used chiefly in narrow columns and jobwork.

Extract. In composition, a passage taken from another book or work; a quotation, excerpt, citation. A short quotation is usually run in the text of the paragraph, with the quotation marks to distinguish it, but when it is long, making a full sentence or more, it is often set in a separate paragraph. An extract in a separate paragraph, in the same length of line as the text, should be enclosed in quotation marks; but when it is set in smaller type or in shorter lines, and separated from the text by extra leads, introduced by explanatory words, the quotation mark may not be needed. An approved practice in bookwork is to set extracts of four or more lines in one or two sizes smaller of type like the text.

Extras. The charges on composition, presswork, or other items, above the regular or fixed charge, on account of additional labor, etc., as for setting tables, inserting plates, etc. Something above what is due, stated, or expected; anything additional for which a charge should be made.

Eyelet. A small metallic ring or bushing, set in a small hole made in card, cloth, or other material, to re-enforce the edge of the material around the opening. Eyeletting is sometimes required in jobwork, as for window show cards, calendars, tags, etc. There are several styles of small machines made for this purpose, which punch the hole, and also clinch the metal eyelet.

Eye Shade. This is sometimes used by compositors and other printing-room workers when working under artificial light. Many parts of the work make an unusual demand upon the worker's eyesight. The use of a shade, comfortably fastened on the forehead, will often relieve the strain on the eyes, especially if one must look for any length of time in the direction from which the light comes.

F. The lower-case *f* is often kerned, that is, has part of the face projecting over the body. This overhanging beak is easily broken off when the letter comes immediately before another tall letter, so that most roman fonts are supplied with combination *fi*, *fl*, *ff*, *ffl* cast on single bodies without kerns. These combinations are more familiar in ordinary reading than the separate letters, as will be noticed in these examples, fine fine, flow, flow, office office.

Fabrikoid. See *Imitation Leather*.

Face. (*a*) The impression surface of a type or printing plate; the part which prints as distinguished from the shoulder, shank, or base. See *Type*. (*b*) A particular style or size of letter cast in type, as distinguished from another style or size: plain face, bold face, light face. (*c*) The front or printed side of a sheet, etc.

Fac Initial. An initial letter surrounded by a panel made of small type borders, florets, etc.; common in typography of the seventeenth and eighteenth centuries.

Fac-simile. An exact reproduction; a copy which cannot be easily distinguished from the original; a reprint in the same type, etc. Often abbreviated to *fac-sim*.

Fac-simile Halftones. Highlight halftones, which get their title from the fact that the halftone screen is eliminated from the highlights. They are used to reproduce pencil, crayon, or charcoal drawings. Also known as *Drop Outs* and *Blow Outs*. See *Flushing*.

Faint Ruling. The horizontal or cross lines, usually pale blue, made on writing paper, blank-book leaves, and similar work, by a ruling machine. Often spelled *feint* ruling, an obsolete form derived from a term used in fencing.

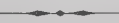
Fair Office. In the language of the members of the typographical union, a fair office is a union office where the union scale of wages is paid, and an unfair office is one which is not governed by union rules.

Fake. A made-up newspaper story or proposition in which there is little or no truth; a pretense, a cheap imitation. To cover up or alter imperfections, as to touch up bad rule joints or broken letters in a proof.

Fake Process. In photo-engraving, the making of two, three, or four halftone negatives, at proper screen angles, from black-and-white copy or photographs. It is used as a substitute for the method of employing true color separations only when the latter is impracticable, as may be the case in making color plates of large oil paintings, flower gardens, landscapes, etc. Some very pleasing results are obtained by this process.

False Motions. The unnecessary movements made by some compositors in typesetting. Present-day workmen are not so prone to habits of this kind as those of the last generation, when all composition was done by hand and many compositors worked solely on straight matter at piece wages. Some of these habits were to bring the type to the stick and hit it once, twice, or three times against the composing rule before leaving it in place; to hit it on the center bar on the case on its way to the stick; to carry it above the stick and put it in place after a flourish in the air; to stand before the case with a bobbing motion keeping time to each letter picked up; and other time-consuming motions and peculiarities which became fixed with those who paid little attention to acquiring efficient habits.

Family. Applied to type faces, meaning the complete group or series of different sizes and styles of any one type design, as the Century family, the Cheltenham family. Of the type families listed, the Cheltenham family is the largest.

Fancy Dash. Brass rules like this——formerly used in newspaper and pamphlet work, were called fancy dashes, in distinction from plain rules. See *Dash Rule*.

Fanfare. A showy style of binding for a book, in which there is a great profusion and repetition of flowers, foliage, and other small ornaments.

Fan Out. In counting sheets of paper, to comb or gently rub them from each other so that the edges are separated in fan fashion. This may be done by grasping a quire or two between the fingers and turning up the edges with a rolling movement with the fingers of the other hand, bringing them up when they may be counted. Also, to separate the upper sheets of a pile by drawing the thumb across, as in feeding to the press.

Farm Out. When a job of printing is sublet, or when all or part of a job is done in another shop, as composition in the first shop, presswork outside, it is said to be "farmed out."

Fat. Type composition in which there are many blanks or large spaces enabling the compositor to set a large number of ems in a given time, like large headings, poetry set open, double-leaded and triple-leaded matter with many break-lines, engravings measured in with type, etc. Sometimes spelled *phat*. Type set solid, with few or no blank lines, is lean.

Fat-face or **Full-face.** A style of type face with the heavy lines made broad and black. These are **Fat-faced Letters**. See *Bold-face*.

Father of the Chapel. The presiding officer of a chapel or organization of union workmen in a printing office. An old-time designation; now the chairman of the chapel.

Feather-edge. A thin, rough edge, like the deckle edge of paper and cardboard.

Feather-weight. Sometimes applied to a light but thick printing paper used for novels, etc.

Fecit. A Latin word meaning "he has made it," frequently added to an artist's name or on an engraving or picture. *Del.* (*delineavit*, "he drew it,") is sometimes seen on old prints and drawings in similar use.

Feeder. A person who supplies a printing press with paper, one sheet at a time. This part of printing-room work was formerly considered boy's or girl's work, but the increasing size and complexity of modern presses call for more skill and endurance, and men are now usually required to do this work. On many modern presses the feeding of sheets is now often done by an automatic mechanical apparatus. See *Self-feeding*.

Feed Edge. The edge or side of a type form, while it is locked in a chase on the press, that comes nearest to the feed-gages as the sheet is printed. See *Gripper Margin*.

Feed-board. The table on a press upon which sheets are placed to be supplied sheet by sheet for printing.

Feed-guides. Any one, or any pair, of several kinds of appliances for holding the paper sheets in a uniformly straight position while the impression is made; a feed-gage or pin.

Feel. The characteristic finish and general quality of a sheet of paper as determined or judged by contact with the fingers.

Feet (of a type). The bottom of the shank, formed by breaking off the jet and grooving. Type that is not standing perfectly upright is said to be off its feet. See *Type*.

Felt. On paper-making machines, a web, usually of a textile fabric, which acts as a carrier of the newly formed sheet of paper over the cylinders of the machines.

Felt Side. The smooth side of a sheet of paper, as distinguished from the *wire side*. See also *Wire*.

Female Die. In embossing, a metal plate in which the design is incised or depressed so as to correspond with the raised design on the *male die*, the one fitting into the other, and both used together to produce the embossed surface on the paper or cardboard. Also called *Counter Die*.

Fender. A strip of stiff paper or cardboard, glued to the tympan of a platen press in order to prevent the sheets from sliding over the feed-guides while printing.

Ferrotypes. A photographic picture, in positive, taken on a thin iron plate by a collodion process; also the process itself. The common name of it is *tintype*.

Festoon Drying. A method of drying paper in a uniformly warm room; the sheets are hung and conveyed by means of a series of loops.

Fiber. A filament or plant cell largely composed of cellulose, the basic element of paper-making material.

Ferricyanide. A compound of a base with ferricyanogen (cyanogen and a form of iron), used in the manufacture of iron-blue inks.

Ferrocyanide. A compound of a base with ferrocyanogen (cyanogen and a form of iron different from that in ferricyanogen), used in the making of iron-blue inks. The iron blues are a mixture of the ferrocyanides and the ferricyanides of iron and potassium. The discovery of these pigments dates back to the eighteenth century when Prussian blue was accidentally discovered by Diesbach, a color manufacturer. It was some years before its true composition was established by chemical research. When a ferrous or ferric salt is added to potassium ferrocyanide a pigment is precipitated which, according to the materials used and their purity, will vary in color from a pale blue to a purple. The best known of these pigments is Prussian blue, obtained by adding a ferric salt to potassium ferrocyanide. In commercial practice the pure compound, ferrous ferrocyanide, $\text{Fe}^{2+}(\text{CN})^{18}$, is not obtained, but a mixture of a number of double cyanides. In addition, there seems to be more or less potassium ferrocyanide carried down with the pigment, and, owing to the fact that it is practically impossible to wash it out, it has been considered a part of the pigment. See *Iron Blues*.

Figures. The ten characters commonly used to represent numbers are known as Arabic figures: 1234567890. Roman numerals (IVXL CDM) are often used in books and programs for chapter and paragraph numbers and other subdivisions, but they are not so clear nor convenient as the figures, and are not practicable for statistical and tabular work. The arabic figures are now cast for all fonts of type, and they occupy boxes in the same division of the type case as the lower-case letters and points. When the font contains capitals and no small letters, the accompanying figures are usually kept in the top row of boxes above the capitals. For most roman fonts the figures are cast on

bodies of the uniform thickness of an en quad, though they are sometimes made wider. Originally the Arabic figures were of very irregular shapes, which were gradually modified to the forms as at present known as old-style figures: 1234567890. The designers of modern types have brought the figures into still more uniformity in the modern lining figures: 1234567890. These two styles of figures are distinctive features of old-style numerals and the modern designs of type faces; but typefounders have of late made old-style figures larger and brought them on a uniform line: 1234567890. For tables and for lines of capitals the large figures on uniform line are preferred, but where many figures appear in a paragraph the smaller old-style figures are quite legible, do not unduly spoil a page, and usually are better mates for lower-case letters.

Filigree. Specifically, delicate jewelry resembling lacework made of twined gold or silver wires, ornamented with beads or bits of metal; hence in a general sense, any fanciful ornamental openwork in carving, tracery, printing, etc., regarded as trivial, fragile, or unserviceable.

Fillet. (a) A band of gold leaf or a plain line or band as on a book cover. (b) A small wheel held in a handle for making such bands or lines by hand-tooling on a book cover. The term has many other meanings, for which see general dictionaries.

Filler. (a) Miscellaneous matter to be set in type and kept ready to fill space in a newspaper which for any reason is not filled with live news or stories. Filler may be of several kinds, for the sporting, woman's, or editorial pages, and it is so marked with a guide-line. Short pieces of filler are called *plugs*, *shorts*, *finecut*, or *dutchman*. In some offices filler is called *horse* or *bogus*. (b) In paper-making, a substance such as china clay or other material used for filling the interstices between the fibers, to add weight and opacity to paper as well as give it a better surface. (c) A substance used by bookbinders for filling up the pores of some leathers to enable the glair or size to lay on the surface.

Film. A thin film or layer of collodion or gelatin, which contains the sensitive chemicals on the wet or dry-plate in photography; the sheet of flexible celluloid or other material upon which the sensitive layer is mounted.

Filters. See *Color Filters*, and *Three-color Process*. . .

Filter Paper. An unsized porous paper, used for filtering purposes in laboratories.

Finder. There are many types of finders attached to cameras, or kodaks for outdoor work. One of the simplest consists of a little wire frame, whose size depends upon the size of the plate or film, and this has a pair of crossed wires. Another style of finder consists of a negative lens with a pair of crossed lines. When looking at the lens, one sees a bright image of the view in it. A third style is the *direct-image finder*, which is in reality a miniature box camera, with a convex

lens in front and a piece of ground glass at the back. This style shows exactly the same amount of view and the proportionate size of the objects as that which appears on the plate or film. A fourth style of finder is the *reflecting image finder*, which shows an erect image on the screen of the finder, that is, one which is right side up. It consists of a convex lense with a mirror set at an angle of forty-five degrees in the back of the ground-glass screen, where it can be seen by looking down instead of in a line with the lens of the camera. On cameras used in photo-engraving, the ground glass in back of the camera is the finder. This shows the image or object to be photographed, upside down.

Fingers. The grippers on a press which hold the sheet when printing.

Finis. A Latin word meaning "end," used at the end of a book, etc. Modern practice is gradually discarding its use, substituting the words **THE END**.

Finishing. The process of perfecting or beautifying anything. (a) In bookbinding, the lettering and ornamenting of the cover, gilding the edges, etc. See *Binding*. (b) In electrotyping, the part of the work which consists of correcting defects after the plate is made in the rough, replacing bad letters, leveling up the face, trimming, and otherwise preparing it for printing. See *Electrotype*. In many skilled trades finishing is a specialized branch of the work. Persons who perform this work are book finishers, electrotype finishers, etc., and are usually expert workmen in their trades. (c) In photo-engraving, all the operations necessary to complete the plate after it has been etched, such as beveling, hand-tooling, squaring, bordering, re-etching, blocking, etc.

Finisher's Marker. A tool for marking low spots in the electrotype.

Finisher's Rubber. In electrotyping, an abrasive made of rubber and ground glass.

Finisher's Slab. A steel slab with a perfectly true and polished surface upon which the finisher works in electrotyping.

Flaming. Passing a flame over the surface of the melted moulding compound, used for case-making, immediately after the flowing of the case to remove the air bubbles.

First Bite. In making a line-engraving, etched on zinc, usually at least four separate etchings or "bites" are required in order to obtain the proper depth. The first etch, or the time that the plate is immersed in the etching acid, before the first "bleeding-up," is called the *first bite*.

Fixing. (a) In photography, the operation of toning or fixing the color of photographic prints in a hypo or other fixing bath. There are several formulas for fixing baths. (b) In photo-engraving and in

photography, the fixing process for wet or dry-plates in negative-making. After the plate has been developed, the unreduced silver still in the emulsion is cut away with water and cyanide of potassium (or other chemicals). This eats away all of the unaffected silver which represents the black areas of the copy, the white areas having been turned black by the developer. This treatment is called "fixing."

First Form. The form which contains the first page of a sheet; the outside form, usually the one printed first.

First Page. In composition, the first page of a regular form; in a work done in eight-page forms, the first pages would be 1, 9, 17, 25, etc.

First Proof. (a) The earliest taken, immediately after composition, in which compositor's errors are marked; in distinction from subsequent proofs, which are termed *revises* and numbered first revise, second revise, etc. See *Proofreading*. (b) The first set of impressions from an engraving.

Fist. Common name for the index mark ; a hand.

Flashing. In making the exposures for some of the negatives to be used in photo-mechanical engraving, the third and last exposure is called "flashing." The third exposure is made with a shadow stop, which has an aperture of about $\frac{5}{32}$ of an inch, and requires about two minutes, (more or less). The details of the shadows reflect so little light that this longer exposure is necessary in order to produce any effect on the negative. A smooth gradation of tone from shadow to middle tone requires that there be at least a fine shadow dot in the negative, and if exposure does not accomplish this, then dots must be forced into the shadows by means of "padding," "papering," or "flashing." In copy which has no deep shadows, the third exposure is not necessary. In "papering," a piece of white paper is placed over the copy and an exposure of about forty-five seconds is given with a very small stop. This forces a fine dot in an otherwise solid area. When a small piece of black paper is used, this may serve to hold back some small, excessively light area, during the highlight (second) exposure. This procedure is called "padding."

Flat Bed. Said of a press having the printing form on a plane surface, in distinction from one having a curved printing surface. See *Press*.

Flat Cap. A size of writing paper 14 x 17 inches.

Flat Paper. Paper which comes from the mill in flat sheets without fold or crease. The term is applied especially to writing papers sold by makers and dealers in packages of flat sheets of standard sizes and finish.

Flat Proof. (a) A proof made without underlays, overlays, or other make-ready, as of an engraving. (b) A proof of a plate etched but not tooled or given finishing touches.

Flat Tint. A light color printed from a flat plate, without engraved lines or other marks, usually a panel or outline.

Flexible Binding. Said of a book which is sewed on raised bands and the sewing threads passed entirely around each band, thereby making a flexible back. The term is applied also to the covers of a book, as for example, *full flexible* or entirely *limp*; *semi-flexible*, when a thin board or heavy paper is used in making the cover.

Flier or Flyer. A small sheet, printed on one or both sides, for public distribution; a small handbill; dodger.

Flimsy. Applied to any thin paper, such as used for telegraph copy in newspaper offices; tissue or manifold paper.

Flitters. Fine bits of tin, brass, and the like, used in decorating Christmas cards and other work, to give effects of spangles, frost, etc. Flitters are dusted on a sizing, which is either printed or put on with a brush, as for bronze powders.

Floating Accents. The name given in England to separate accent marks which may be placed beside any letter as required. In America called *Piece Accents*.

Flock Printing. A method of printing with varnish and then dusting on the color in flock powder—flock being shearings of wool cloth, finely powdered rags, or vegetable fibers. Flock powder is used for coating wall paper, etc.

Flong. A prepared sheet of soft thick composite paper used for making matrices for stereotypes.

Floor Pi. Type dropped on the floor and left there by careless compositors.

Floret. A small flower or part of a flower. In printing, the name is given to any flower or leaf-shaped type ornament. All florets are not flowers, for the name florets has come to include all sorts of little ornaments not inclosed by a border line or frame. Flowers was a term given to early type ornaments made for borders and decorations.

Flourishes. Curved lines and ornaments made for use with lines of type, sometimes made of brass and in other cases of cast metal. A sweeping stroke or ornamental line, as in engraving and penmanship, formerly popular in typography, sometimes being made in elaborate combinations.

Flush. In printing and allied trades the term is often used adverbially. To trim flush, said of a book, meaning to trim the cover and leaves the same size, with even edges, in distinction from an overhanging face. To trim an electro or other block close up to the printing face. To set flush, in type composing, meaning to set type to the end of the line. To start a paragraph flush, that is, to omit indention.

Flux. Any substance, like borax, rosin, etc., used to promote the fusion of metals. A compound put into metal in the furnace of a Linotype, Monotype, or other casting machine, to clean the metal and bring the dross to the top; a combination of tallow, charcoal, rosin, sal ammoniac, etc.

Fly. A sheet delivery apparatus on a cylinder press. It is usually a large frame of long sticks or fingers attached to a bar which moves on an axis, receiving the printed sheets one by one from the cylinder and turning them over upon a receiving table. In the days of hand presswork, fly-boys were often employed to take the printed sheets off the tympan, to expedite the work of the pressman. On the first power presses the delivery of the printed sheets was done by boys until a mechanical fly was devised.

Fly-leaf. The blank leaf at the beginning or end of a book; it may be inserted by the binder, but may be a blank leaf of the first or last sheets of the printed work.

Fly Title. In England this term is sometimes applied to the half-title or bastard title; not used in America.

Focus. In photography, the point at which the copy or image of the required size, appears clearly and distinctly upon the finder or ground glass of the camera.

Focal Length. See *Lenses*.

Focal Depth. In photography, the degree to which the different distances are sharp and distinct is called the *depth of focus*, and to get this effect the lens must be *stopped* down. The smaller the stop the greater the effect will be, but small stops require a longer exposure than large stops. *Depth of focus*, therefore, means having all the objects which are at different distances, or planes, from the lens form an equally sharp image. See *Lenses*, and *Shutters*.

Fog. In photographic processes, *fog* is one of the greatest troubles encountered. It may be due to any one of several causes, such as impure chemicals or stray light in the dark room or camera. It produces an effect on the negative as though the entire sensitized surface had been slightly exposed to light.

Foil. A metallic substance formed into very thin sheets by rolling and hammering, as gold-foil (or leaf), tin-foil, lead-foil, Dutch-foil, etc. Imported patent foils, substitutes for genuine metal leaf, are made in a variety of colors and largely used for stamping book covers, for window signs, lettering, and decorating, on cardboard, cloth, leather, silk, and other materials. See *Gold Leaf*, *Oeser Foil*.

Fold. The doubling over of a sheet of paper may be done in several ways: A right-angle fold is made when the successive folds are made at right angles to each other; a parallel fold is made by making two or more folds across the paper in the same direction.

Folder. (a) A general term for any printed sheet of four or more pages so imposed that they follow each other consecutively as in a bound book, or so that the sheet may be opened out to full size and display a series of single or double pages. (b) A small stick of ivory, bone, steel, or wood used in folding sheets by hand. (c) A folding machine is often called a folder. See *Folding Machine*. (d) A cover made of cardboard to contain loose leaves.

Folding Box. A cardboard box made by cutting and creasing the card so that it folds into the desired shape.

Folding Chases. A term sometimes applied to chases used in pairs; oftener called twin chases. See *Chase*.

Folding Machine. A machine for folding printed sheets of books, magazines, and newspapers. For book and magazine work, the folding machine may be separate from the printing press, but the daily newspapers have the folding machine attached to the press, so that the paper, after unwinding from a roll, is printed and goes forward to be cut off and folded. In the book-folding machine the sheets are fed to gages or points. A descending blade at the middle of the sheet forces the paper into an opening in the apparatus; the paper is then caught by rollers or tapes which carry it to another fold, and so on until all are made. Some folding machines are made to attach to single and double-cylinder presses, and sheets are run into them without extra feeding. Other machines fold, paste, and insert one sheet within another, or within a cover. Sheets folded by machine often require the pages imposed in a manner different from the pages of sheets folded by hand. See *Dexter*, and *Cleveland Folders*.

Folio. (a) A sheet folded once, consisting of two leaves or four pages; formerly understood as a sheet approximately 18 x 24 inches, giving a leaf about 18 x 12 inches; making a book of large size. In modern usage the size of the sheet in book paper is variable, the term meaning any work composed of a sheet folded once, like a folio newspaper, having four pages. In flat writing paper, however, the standard size of 17 x 22 inches is commonly called folio. (b) A leaf of manuscript, or a certain number of words considered as a unit for measuring the length of a document; in legal work, commonly designates one hundred words; in English law work, ninety words constitute a folio. (c) The page number of a book or other work. (d) A case for holding engravings, photographs, music sheets, etc.; a portfolio.

Follow. In copy-marking on newspapers, a "follow" is a guideline which is used the same as *add*, except that the different word is employed.

Follow Copy. When a compositor receives this instruction it indicates that in matters of punctuation, use of capitals, italics, variable spellings, style of type, etc., the copy is to be his guide. In many cases the rules of the house, the style adopted for a particular work, and other matters, may not be observed by the writer; or

several writers for one work may vary greatly in these particulars; so that it is often the compositor's duty in setting the type, to make the changes from copy to keep the work consistent.

Follow Style. See *Style*.

Font. A complete assortment of types of one size and face, containing a due proportion of each letter, large and small, points, figures, etc. Formerly all was cast at one time, but it is now understood as the assortment which is furnished by the foundry. It may be designated by its weight, which is the case with small type in large quantities; or by the number of letters it contains, as in the case of larger types, used in small quantity, for jobbing, display, and advertising. In the latter case, the size of a font is usually indicated by the number of capital A, small-capital n, and lower-case a (like 40-A 20-n 80-a) it contains, the number of other font letters varying according to a prescribed scheme. A full font includes capitals, small capitals (if made), lower-case, figures, punctuation marks, dashes, braces, and occasionally some extra characters. A partial font is the section of a complete font, like cap, font, lower-case font, etc. In Great Britain the term is spelled *fount*.

Font Scheme. A written or printed list of a prescribed quantity of types for each character of a font. See *Job Font*, *Weight Font*, etc.

Foolscap. A size of writing paper 13 x 16 inches, usually folded once, to make it a leaf 13 x 8 inches. In England foolscap paper is 13½ x 17 inches. So called from a water-mark of fool's cap and bells used by early paper-makers.

Foot-line. The bottom line on a page, usually blank; it may sometimes contain the page number, signature mark, etc. When the last line of a paragraph will not come into the regular page length, it may take the place of the foot-line and thus avoid putting a short line on the top of the next page.

Footnote. A note or reference at the bottom of a page, usually set in type several sizes smaller than the main text.

Foot-stick. A piece of furniture, wood or metal, put inside of a chase at the short side of a form, against which quoins are placed to lock up. The long side has side-sticks. Before the introduction of mechanical iron quoins, beveled foot-sticks and side-sticks, larger at one end than the other, were used, in order to form a wedge-space into which wood quoins could be driven and thus tighten up the form.

Fore Edge. The outer edge of a book page, opposite from the back fold.

Force. The male die used in embossing. See *Embossing Process*.

Form. A page or number of pages, engravings, or lines of type locked in a chase ready for printing or molding. When lines of type have not been properly justified, or the furniture, side-sticks, or quoins are not true, the form will sometimes spring—that is, some part will

not lie solidly in the bed of the press. In this case, spaces, quads, leads, or furniture will work up to the level of the type during printing and show on the white paper. When the form is taken from the imposing table all parts should be of equal tightness and no types loose. The term is spelled *forme* in English trade literature.

Form Truck. A small carrier with two wheels supporting a slotted frame into which the edge of a chase may be placed, to wheel a heavy form along the floor from the imposing table to the pressroom.

Format. The size, shape, proportions, and general appearance of a book or similar work, including the style of type, the quality of paper, and kind of binding. A term used by bibliographers.

Fourdrinier Machine. A paper-making machine, named after the brothers Fourdrinier, French stationers in England, who, in 1804 or 1806, improved the original invention of Louis Robert, Frenchman, made in 1799. Its four principal portions are: (1) the wet end containing the flow box on which the watery pulp flows, the wire screen, the deckle, suction boxes, and dandy roll; (2) the presses—a series of revolving rolls covered with felt; (3) dryers, rolls equipped with felts and heated; (4) winding end (dry end) containing calenders, winding felts, cutters, etc.

Forty-eight or 48mo. A sheet of forty-eight leaves. Like other forms of many pages, a sheet of 48mo is not practicable to fold as a single section, except with the very thinnest paper. It is usually made up of very small sections, to be cut apart after printing and folded separately.

Forwarding. The process of binding a book after the sheets are sewed, until it is in the cover. The lettering, ornamenting, and other work to complete it, is finishing. See *Binding*.

Foul Case. A type case so badly mixed in distributing or otherwise that it is difficult to set from. A foul proof is one with many errors.

Foundry Chase. A chase for holding forms that are to be molded for electrotyping, etc., made extra thick and strong. It often has a handle for convenience in carrying back and forth to the electrotype foundry. Forms to be modeled in wax need extra strong locking up to prevent letters or lines from pulling out when the form is taken from the wax mold.

Foundry Proof. The final proof showing the heavy guard-lines, before sending a form to the electrotype foundry.

Fount. See *Font*.

Fountain. A reservoir for holding ink, fixed to the press; usually with an arrangement of rollers which carry ink to the distributing table and form rollers.

Four-color Printing. An extension of the three-color process of plate-making and printing, a fourth color of black being printed in addition to the three colors. See *Three-Color Process*.

Fourth Estate. A name given to the newspaper press, or the body of newspaper publishers and writers, as constituting a power in the state distinct from the other three estates or orders recognized in European governments. These three were the clergy, the nobility, and the common, or middle class, as distinguished from the lower or unrepresented class. The use of the phrase is attributed by Carlyle to Edmund Burk, who pointed to the reporter's gallery in the English House of Commons and said that it contained a fourth estate, more powerful than the other three.

Fractions. These are cast in type in several styles. Common fractions like these $\frac{1}{2}$ $\frac{1}{4}$ $\frac{3}{4}$ are cast in one piece on en bodies, and are properly used with modern roman figures, thus: $4\frac{1}{2}$ $5\frac{3}{4}$ $7\frac{1}{4}$. Another kind are piece fractions, each figure cast separately on a body one-half the depth of the type they are used with: $\frac{1}{2}$ $\frac{3}{8}$ $\frac{8}{8}$. A light line is cast on top of the denominator or on the bottom of the numerator. These may be combined to make any desired fraction: $\frac{4}{9}$ $\frac{3}{10}$ $\frac{7}{13}$. Fractions like these are provided for use with old-style figures: $\frac{1}{2}$ $\frac{1}{4}$ $\frac{7}{8}$ etc., made in one piece on em bodies. Fractions of this kind are made both with old-style and with modern figures, and in open-faced matter give greater clearness than the en-set fraction. Another style is the self-spacing piece fractions made on full bodies of an en thickness; there are four sets of the ten digits, one on the upper half of the body, $\frac{1}{2}$ $\frac{3}{4}$ $\frac{5}{8}$ $\frac{7}{8}$ $\frac{9}{8}$, and another on the lower half, $\frac{1}{2}$ $\frac{3}{4}$ $\frac{5}{8}$ $\frac{7}{8}$ $\frac{9}{8}$; two other sets have diagonal strokes, one below and the other above the figures, $\frac{1}{2}$ $\frac{3}{4}$ $\frac{5}{8}$ $\frac{7}{8}$ $\frac{9}{8}$. These may be combined in this manner: $\frac{1}{2}$ $\frac{3}{4}$ $\frac{5}{8}$, and may be used to make any fraction desired. A new scheme, called cut-cost fractions, consists of types of en-set bodies having a numerator and denominator on each: $\frac{1}{2}$ $\frac{1}{3}$ $\frac{1}{4}$ $\frac{1}{5}$ $\frac{1}{6}$ $\frac{1}{7}$ $\frac{1}{8}$ $\frac{1}{9}$ $\frac{2}{1}$ $\frac{2}{2}$ $\frac{2}{3}$. Combinations of these are composed to make various fractions, in this manner $\frac{1}{6}$ $\frac{2}{9}$ $\frac{5}{8}$ $\frac{9}{16}$. Numerators on half-size bodies like $\frac{1}{2}$ $\frac{3}{4}$ $\frac{5}{8}$ $\frac{7}{8}$ are used to combine in this manner $\frac{1}{9}$ $\frac{3}{8}$ $\frac{5}{6}$ $\frac{7}{8}$. In the absence of proper types, makeshift fractions like these are sometimes employed: 1-2, 3-4. Fractions are a difficult and annoying problem in the average composing room. The small sizes are fragile and easily disappear unless carefully handled and properly cared for and properly distributed. In many offices their need is only incidental and the assortment on hand is small and not well cared for; but in places where there is much tabular work, price lists, machinery and supply catalogs, etc., there is constant need for fractions and it is wise economy to have an ample supply of the fewest kinds required and to care for these systematically. The cost of type is small compared to the cost of time spent in searching for material of this kind.

Fraktur. The name of the text of body letter used for German type. Type faces of this character have been the accepted standard for German newspapers and books of literature. A similar style, called (Schwabacher), rounder and plainer than the Fraktur, is also used in German printing.

Frame. The work stand on which type cases are placed. To have a situation in a newspaper or book room is to "hold a frame."

French Folio. A thin, smooth, sized paper, thicker than tissue, much used by pressmen for overlays and underlays in make-ready.

French Quotes. Quotation marks of this form [« »]. In French, *guillemet* (ge ye ma). These were used in France as early as 1660 and are used now by French printers. They were not acceptable to English printers, who adopted the inverted commas and apostrophes, as in use today. Several attempts have been made to introduce the French form of quotation marks in this country, but they have failed of extended acceptance.

Friar. A light place in a printed page, caused by imperfect distribution of ink. A black spot is a monk.

Frisket. A light iron frame covered with paper and attached by hinges to the tympan of a hand press, to hold the sheet in place and protect it while it is being printed. An impression is first made upon the frisket sheet and the printed portions cut away; when the printing paper is placed upon the tympan the frisket is turned down, exposing only the portions of the paper that are to be printed. In this way margins and spaces of the sheet are protected from the inky or oily furniture, chase, etc., and the sheet is laid on the form with less liability of slurring than when laid on loosely. A frisket is often employed on platen job presses, either wholly or partially covering the printed sheet, as may be required. In this case, the frisket sheet is fastened to the movable grippers, being stretched across in front of the form, and an impression made on it. The printed parts are then cut out, allowing the form to print on the white sheet lying on the tympan beneath. See *Gripper*.

Front Pages. (a) Those in the front of a book, preceding the main text or story: titles, preface, contents, etc. The front matter. (b) Those in the first half of a folded signature.

Frontispiece. A picture facing the title page of a book.

Fudge. (a) To devise; to contrive; to make shift; to work without proper tools. (b) An attachment to a rotary newspaper press, used by some metropolitan dailies, for printing late news, usually in different color from the rest of the page. It consists of a small curved surface for holding the matter to be printed, an ink fountain, rollers, etc., and is fitted to a shaft on the press where it will leave its impression on the desired part of the page. Large heading types are made with a curved face on a special base. Common paragraph matter is made on

linotype slugs having a wedge-shape body, cast in a special mold. The regular news page is made up and stereotyped as usual, but with that part of the columns left blank where the fudge is to print. The advantage of the apparatus is in providing a means for getting important items of the latest news into the paper and on the street within a few minutes after the final message is received at the office, the regular pages having been stereotyped, trimmed, and placed in position as for the regular edition. The time required to get news in fudge is merely the few minutes necessary to set the lines and clamp them into place on the small curved surface or turtle.

Fugitive Colors. Colors or inks which are not permanent, and change or fade when exposed to light.

Full Binding. Binding in which the sides and back of a book are entirely covered with leather. See *Half-Binding*, *Three-quarter Binding*.

Full Color. When ample amount of ink has been used in printing; in distinction from gray color, when only a small quantity of ink is used.

Full-face. See *Fat-face*, *Bold-face*.

Full Gilt. When the edges of the leaves of a book are gilded on head, fore edge, and tail.

Full Measure. Type composed to the full width of the page, and not half-measure or other fractional division.

Full Page. A page filled from top to bottom with type lines, as distinct from a page that is short, like the first or last page of a chapter.

Full Point. In punctuation, the period is sometimes called by this name, also a full stop.

Full Press. When printing was done on hand presses, two men were accustomed to operate it—one to roll the ink, the other to put in the sheet and pull the impression; this was working on a full press.

Fundamental Colors. See *Primary Colors*.

Furniture. In printing-office parlance this term is used to mean pieces of wood or metal designed to fill large spaces, between pages, and around type forms when locked in a chase. It is made in various lengths and widths, the sizes usually being multiples of 12-point (or pica). The larger pieces are of cherry or pine, three feet long and ten picas wide. See *Reglet*. Metal furniture is made in several styles, the common kind being chiefly of lead with a small quantity of antimony. It is cast with hollow spaces, to reduce its weight, with bars or braces lengthwise and crosswise in the larger pieces. The smaller spaces range from 2 x 4 picas up to 10 x 25 picas. In addition to these sizes, larger pieces, called mammoth furniture, from 12 x 15 to 25 x 48 picas, are now supplied. Another kind, mostly in small sizes, is known as quotation furniture, being hollow from one side only, with a solid

top, like a large quad. Reversible or railroad furniture is concaved on the top and bottom but with a solid area, presenting the ends of each piece shaped like this . This kind is serviceable for gutter margins and other places where lockup furniture has now become common. It is usually in larger sizes than the ordinary soft-metal kind, but is made in blocks of a similar hollow form. Another kind is especially adapted for forms having large blank spaces. Metal is much preferred over wood for furniture; it can be made more accurate in size and will retain its accuracy longer, will not warp when wet, and yields less under pressure. Material of this kind, either of wood or metal, is now usually supplied in labor-saving fonts, containing an assortment of standard sizes. See *Labor-saving, Quotation Furniture*.

Fuzzy. Loose particles of paper or other material.

Fuchsine. A dyestuff produced by oxidation of a mixture of aniline and toluidines. It is a metallic green superficially, but yields a brilliant dark red when dissolved. Fuchsine consists essentially of salts (usually hydrochlorides or acetates) of rosaniline and pararosaniline. It is a water soluble dye used in the manufacture of printing inks.

Gage or Gauge. (a) A piece of wood or metal (reglet, slug, or brass rule) used to determine a measure of any kind, to preserve uniform length of pages, position of form, width of margin, or similar purpose. (b) Also a piece of wood, cardboard, or metal fastened on the tympan of a job press as a stationary guide to locate the sheets in feeding.

Gage-pin. A flat pin or metal device for use on the platen of a press to hold the sheet in position. Gage-pins have been made in a variety of styles for use on platen job presses, and they are of distinct advantage. Many job pressmen, however, do not appreciate these advantages and prefer to use common quads fastened in place with glue re-enforced by a narrow strip of paper pasted over. A gage-pin is merely pushed into the top sheet of the tympan and is good for small jobs of a few impressions, as the repeated pushing of the sheets will loosen them sooner or later, thus giving a variation in the margins of the printed sheets. When exact margins and register are required the safer method is to have the gage pasted and re-enforced so that it will remain fixed during the run of the job.

Galley. The shallow tray used by compositors to hold type after lines have been set in the composing stick. It consists of a thin brass bottom with three perpendicular sides a little more than half an inch high; the fourth side is open to permit of the type, when tied up, being pushed off on to the imposing-stone or elsewhere. The usual full-length galley is about two feet long and from four to seven inches wide, but many wider sizes may now be obtained. Short, wide galleys of various sizes are used by job compositors for making up book pages and for other special uses. Galleys made entirely of wood, and others made of wood and zinc are sometimes used, but the most serviceable

galleys are made of brass entirely or with bottom of brass and sides brass-lined. Pressed steel galleys, especially adapted for temporary storage of matter, are now used. They are inexpensive and durable.

Galley Cabinet. Made in several forms, for holding galleys of composed type. It has shelves which hold the galleys tilted sideways, so that the type lines will stand against the lower side of the galley. Galley racks are also made in a variety of styles; some to fasten to a strong support on the wall, others to fasten on platform trucks which can be moved from place to place.

Galley Lock. A device attached to or placed in a galley to hold type or slugs securely while they are being proofed or waiting; made in many varieties, usually consisting of a long side-stick with a clamping arrangement on the sides and at the foot of the matter. In the case of linotype slugs, it is necessary to have a lockup only at the foot of the column.

Galley Rack. A frame having brackets or shelves which hold the galley tilted sideways, so that the type will stand securely against the lower rim of the galley.

Galley Press. A proof press upon which the galley of type may be placed and proof taken. It consists of a flat iron bed with two sides high enough to form tracks upon which an iron cylinder, covered with cloth or felt, is made to move; when the type has been rolled with ink, the sheet of paper is laid on and the cylinder is rolled over to make the impression; a style of proof press used mostly in country newspaper and book composing rooms. Machines for taking galley proofs in newspaper and other large composing rooms are now made in elaborate styles, having self-inking apparatus and supplying the paper from a roll. See *Proof Press*.

Galley Proof. Any proof taken of type matter while it is still on a galley, or before it is made up into pages.

Galley Slaves. A term of derision formerly applied to compositors.

Galley Slice. The sliding bottom or plane of an old-style wooden galley. See *Slice Galley*.

Galley Slug. (a) On newspapers, the copy goes from the editorial room to the composing room, where the copy cutter cuts it into small-sized takes, so that the typesetters each take a small section of an article at one time, and many persons may be setting on the same story at once. The takes are numbered in big pencil figures, "A1," "A2," "B1," "B2," "B3," and so on through the alphabet and figures up to 99 if necessary. The type is dumped on long galleys which the *bank-man* who handles the galleys on the bank or bench, has placed there with big metal slugs corresponding to the numbers on the takes.

The big metal slugs are called *galley slugs*. (b) The guide-lines at the head of galleys, which indicate the content of the matter, are often called galley slugs, but they are set in different type, so that there is no confusion of words.

Gally Universal Press. A platen job press invented by Merritt Gally (*pron.* gaul ey), an American, in 1869. It was the original of this class of platen presses and has several successors, such as the John Thompson, or Colt's Armory, Hartford, National, etc. The principle of this press has been copied in Great Britain and called Caxton, Britannia, etc., and also in Germany, called Victoria, Regina, etc. The Universal press is compact and consequently strong. It is set lower on the floor than the Gordon and similar styles of platen presses. The bed is upright and rigid, the distinctive feature of the machine being that the platen gives its impression on the form with an exact squareness. The ink distribution is done on a cylinder at the top of the bed, the ink being supplied from a fountain in the rear. The rollers that ink the form are held in a carriage which moves down and up at each operation of the platen, though they can be held on the ink cylinder for any length of time while the press is in operation, to give additional distribution, or to avoid excessive rolling of the form when sheets are not being printed. The strong impression and the excellent ink-distributing devices make the Universal style of press well adapted for printing engravings and heavy forms requiring extra ink. Two sizes of the Gally Universal press are now made by the Thompson National Press Co. at Long Island City, N. Y.

Galvanoplate. An electroplate, made by the process of electrically depositing metal upon another surface. Galvano is a combining word prefixed to a number of scientific terms, signifying the employment of an electric current produced by the action of an acid in a cell between two plates of different metals; named after Galvani, the Italian discoverer of current electricity arising from chemical action. *Galvanotyper*, formerly one who produced printing plates by depositing the copper shell by galvanic batteries.

Galvanoglyph. A relief printing plate produced by electrotyping from an etched copper or zinc surface.

Galvanograph. A printing surface resembling an intaglio copperplate, made by an electrotype process.

Galvanoplastic Process. A method of obtaining electrotypes of fossil fishes and similar objects, which can be printed on a typographic press.

Galvanotype. A trade name for a style of intaglio copperplate upon which the camera and the etching acid are employed to engrave the picture, lettering, tinting, etc. It gives soft, rich, effects, like photogravure, and offers a wide range of tones, from pale tints to a dense black. See *Intaglio Printing*.

Gang. A form or group of plates or type arranged to run off altogether at one impression; a sheet thus printed.

Garamond Type. A family of beautiful modernized roman type faces, the design of which is based upon the type designed and cut by Claude Garamond in 1540. The American Type Founders Company makes a Garamond series, of many sizes. The Monotype Company also has a similar type face for its machines which is called *Garamont*. There is a Linotype Garamond for slug-casting machines.

Gas Black. A black pigment for printing inks, produced by burning gas with insufficient air for combustion. The soot is deposited on metal cylinders in very much the same way as lampblack from oil. Gas black is practically pure carbon.

Gathering. In bookbinding, to collect one copy of each signature to make the complete book. The folded sheets or signatures are placed in piles in their proper order, each pile containing the copies of one signature; one copy is taken from each pile, beginning with the first signature and ending with the last. This operation is repeated, each round of the piles making a complete book. This work is usually performed by girls, who pass up and down beside a long table to collect the sheets. In some binderies large editions were formerly gathered from a revolving table upon which the signatures were placed, thus enabling a person to gather while seated or standing still. Machine gatherers are now employed. These consist of mechanisms having compartments for the different signatures that make up a book. Along the front of these compartments an endless belt travels, the surface of this belt being divided into sections to contain the signatures of one book. As the belt moves along from one compartment so another a copy of the signature is ejected from each compartment, so that upon the completion of the circuit it holds a set of the signatures. The adjustment of the apparatus is ingeniously arranged to detect errors, automatically, a signal at each compartment indicating where the trouble is. See *Binding*, *Collating*.

Gaufered Edge. See *Goffered Edge*.

Gazetteer. A geographical dictionary.

Gelatine Printing. Gelatine is a refined form of glue and is used for many purposes in printing. It is the basis of the process known as the hektograph, by which anything written with copying ink, after being transferred to a sheet of gelatine, may again be transferred from the gelatine to sheets of blank paper. Several processes of photo-gelatine printing, known as albertype, collotype, heliotype, etc., are much like lithography, a coating of gelatine upon a sheet of glass or metal being used instead of the lithographic stone. The gelatine method is also used to produce a plate which may be molded and the mold used to produce an electrotpe of the subject in relief. By etching through a gelatine film on copper an intaglio plate is made, which is known as photogravure. See *Hektograph*, *Heliotype*, *Photogravure*, *Process Engraving*, *Aquatone Process*.

Genealogical Work. This is a difficult and expensive class of typographic composition, differing from ordinary book work because of the excessive use of abbreviations, peculiar indentions, different sizes of types, use of capitals, italics, etc. It often requires the reprinting of old documents, with old-time spelling and phraseology. There are usually pedigree charts showing descent from a common ancestor.

Geometric-Lathe. A mechanism for cutting or engraving complicated interlacing lines in uniform gradation, scrolls, etc., as for plates used to print banknotes. Sometimes called a cycloidal engine.

Geometric Pen. A drawing or marking point arranged in a mechanism so that it will draw lines and ornaments in geometric patterns, similar to the lathe work on the back and border of paper currency, stock certificates, diplomas, etc. Employed for both intaglio and relief plates.

Geometrical Signs. See *Mathametical Signs*.

Ghost Picture. An engraved plate showing the major part of the picture in light outline or pale gray tone, with some special detail or feature in stronger color to give it emphasis, or to show its location or application. A modern development of halftone work especially applied to mechanical subjects for advertising purposes. Also called *Phantom Drawing*.

Ghost Word. A meaningless word, or one with an unintentional meaning, as when a compositor fails to read the right word and inserts one of similar appearance but of different meaning.

Get In or Take In. To thin space in setting type, so that a word or syllable may come into the line. To *drive out* is to wide-space. A general rule for compositors, when lines are set solid, is to get in a word if possible by thin-spacing; if lines are wide, leaded, to *drive out*—that is, to space wider than the regulation three-to-em space.

Gilding Rolls. In bookbinding, brass rolls about three and one-half inches in diameter, faced with ornamental designs, used for gold-stamping.

Gilt. Gold leaf applied to ornament covers and edges of a book; in the latter case, chiefly for the top.

Glair. The white of eggs, used as a size to hold gold leaf in stamping book covers, etc.

Glassine. A thin, rather weak, glossy surfaced paper, made in white and a variety of colors. It is treated chemically to be quite transparent, and used as a panel on open-face or window envelopes, as a jacket to protect the covers of newly bound books, for box linings, etc.

Glazed Board. Sheets of mill-board used by binders, and for packing tympan and printing cylinders, etc.

Glazed Paper. A paper with a hard, glossy, surface, usually finished on one side only, made in a variety of colors, used for box covering, labels, etc.

Gloss Ink. An ink containing an extra quantity of varnish, which gives it a glossy appearance when dry; much used for printing book and pamphlet covers.

Glossary. A dictionary of difficult, obscure, or antiquated terms, or words of special meaning, in any language, book, vocation, science, or branch of special knowledge.

Glue. A sticky substance obtained by boiling hoofs, horns, or skins of animals, and also from fish. It is largely used in binderies and in other departments of the printing trade. It is marketed in thin, hard, brittle, cakes, that must be dissolved or melted for use, and in liquid form prepared for use. Glue is one of the ingredients of the composition used for ink rollers. Glue size, for use with a brush, may be made by dissolving glue in water.

Glycerine. A sweet, viscid liquid; it is oily, noncrystallizing, and colorless, and is used in many ways in printing rooms. Glycerine rubbed on the tympan sheet is better than common oil to prevent offset in backing up a sheet. Glycerine is used in the composition of rollers, and, when rubbed on their surface, is useful in reviving old rollers. It is also used to thin out and render workable some kinds of inks.

Glyphography. A process of making printing plates by engraving on a copper plate covered with a wax film, then dusting with powdered graphite, producing a surface that is used to make an electrotype.

Goffered Edge. An indented decorative design on the edges of a book; an old fashion in book decoration, the design being gilded, silvered, or burnt. Also spelled *gauffered*.

Goerz Anastigmat Lense. See *Lenses*.

Gold Bronze. A fine powder used in printing; it is dusted on after the sheet has been printed with sizing. See *Bronzing*.

Gold Cushion. A box padded with cotton and covered with sheep or calf skin in which bookbinders place gold leaf for cutting into convenient sheets for use in lettering and ornamenting a book.

Glue Top. The topping which adheres in the form of insoluble dots on a halftone plate and acts as an acid-resist after it is burned in. See *Enamel*.

Gold Ink. Ink of golden color, used as a substitute for gold sizing and bronze; it gives very little luster, except when printed on glossy paper. It is sometimes printed on top of a first printing that has been made with gold sizing, to heighten its color. A recent method for using gold ink is to keep the powder and varnish in separate receptacles, and mix them for use as needed.

Gold Knife. A flat blade sharpened on both sides, used by bookbinders for cutting gold leaf for ornamenting books.

Gold Leaf. Very thin leaves of beaten gold, sometimes used in typography, but mostly for book covers and edges. The ancient Egyptians hammered out gold leaf between pieces of the intestines of an ox, while the Greeks and Romans employed parchment. This process is still adhered to, as no other means has been invented to supersede hand work in beating the leaf to the required thinness. The beaten leaves are laid in books, the paper of which is rubbed with chalk to prevent the leaf from sticking to it. When gold leaf is used for book covers, a dried glair is first put on the cloth, the leaf laid on and the impression made with a hot die or type form. There are now a number of imitations or substitutes for genuine gold leaf. See *Foil*.

Gold Size. (a) A binding medium, other than glair, used by bookbinders to attach the gold leaf to the leather, cloth, etc. (b) An adhesive compound used in printing before gold bronze is applied. See *Size*.

Gold Stamping. The process of stamping or impressing paper, leather, cloth, or any other material with letters or a design in gold.

Golden Type. See *Jensen Oldstyle*.

Golding Jobber. A platen job press made in several sizes, from 8 x 12 inches, to 15 x 21 inches, by Golding & Co., of Franklin, Mass. The Golding job press has an immovable upright bed, slightly tipped forward, on which the printing form is placed. The platen rests on the upper part of a strong rocker and is held by side-arms which hold it firm for the impression. The motion is given to the platen by a powerful crank at the lower end, inside the frame of the machine. Distinctive features of the Golding press are the ink fountain and the brayer roller which distributes ink to the disk, and the method by which the impression is regulated at the platen.

Good Copy. Copy that is plain and carefully prepared, so as to give the compositor little or no trouble in reading.

Good Night. These words are written on the last sheet of copy furnished by telegraphic news service associations to indicate that all news for the day or night has been sent in.

Goose. Abbreviation of wayzgoose, a festival given to their workmen by master printers of England. See *Wayzgoose*.

Gordon Press. A popular platen press invented by George P. Gordon about 1858. Several styles are now made by different manufacturers, based on the principle of the old Gordon—that is, automatic closing and opening of bed and platen, rollers moving up and down over the form, carrying ink from a revolving disk above, etc. The bed is on the upper part of an upright frame hinged near the floor, and moves toward the platen to give impression by side-arms operated

by wheels geared to a driving shaft. At the time Gordon's press was offered to printers, there were a number of other presses possessing in a crude, cumbersome way the general characteristics required in a machine for this purpose. The Gordon machine proved to be a practical tool in a simplified and improved form. It soon became the standard for small job presses, and is still maintaining its position as the most used of its class. See *Chandler & Price Press*.

Goss Press. A web perfecting printing machine for newspaper and magazine work, printing one color and also color-supplement sheets.

Gothic. Typefounders and printers in this country use this word to describe a style of face of the plainest and simplest form, having no serifs or other extra strokes, and with lines of unvarying thickness:

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

English printers call this sans-serif. Among bibliographers and scholars the name Gothic is applied to certain old-style forms of black-letter, which is the true Gothic character. The "gothic" types of this country are made in many varieties, described as heavy, or black, light, extended, condensed, extra condensed, italic or sloping, as well as by other distinctive names. They are used very largely in newspaper and other advertising, and in commercial and poster printing, but are not acceptable for book work. In its correct use the word Gothic describes the pointed letters of medieval manuscripts; after the style of Gothic architecture.

Gothic Flap. One style of the several different envelope flaps adopted by manufacturers. The ordinary gothic flap is slightly more pointed than the commercial flap. On the extreme-pointed gothic flap envelope the point comes down almost to the bottom of the envelope.

Graduated Composing Stick. A stick with the movable knee adjustable to any measure of 12-points (pica) or 6-points (nonpareil), graduated from one 6-point to the capacity of the stick. These have been made in several styles.

Grade. When this word is applied to papers, it means the relative position in regard to quality as compared with others in the same class.

Graff Soft-focus Lens. See *Lenses*.

Grain of the Paper. In all machine-made paper the fibers which go to make up the sheet lie to a large degree in one general direction, due to the flowing of the pulp on the moving screen which forms the sheet. A pamphlet or book made up of sheets in which the grain runs across the page is stiffer than when the grain is up and down the page. The folding of the sheet in which the grain runs up and down the page is often preferred, especially for thick paper, as it makes a book that is more flexible and easier to open. In the case of heavy paper, cover stock, and thin cardboard, the direction of the grain in regard to the fold should be considered when planning a folder, circular, or booklet.

In some kinds of paper the direction of the grain is strongly marked, a fold across the grain will leave a rough, broken edge, while a fold parallel with the grain will give a smooth edge. In most kinds of printing paper, however, the direction of the grain may not be very noticeable and it can be determined only by close examination. In some cases folding the sheet in opposite directions and comparing the backs of the folds will show the way in which the grain runs. Sometimes gently tearing a strip off the side and another off the end of the sheet will show the grain. Another method is to cut two narrow strips of the same width and length, say about one inch by six inches, one from the end and the other from the side of the sheet. Hold these up together horizontally, one on top of the other, holding one end between the thumb and finger. Turn first one strip under, then the other, and notice the one which droops the most. When held in this manner, the strip cut across the grain will be weaker and will bend more than the strip in which the grain runs lengthwise. See *Paper*.

Grained Plate. A printing plate showing a fine grain or stipple, done in various ways; used for light tints and colors. In halftone engraving, often used to describe an irregular arrangement of fine dots, as distinguished from a screen plate showing dots in mechanically regular order. Also called *Graining Boards*.

Graining Box. In photo-engraving, the box in which the metal plate is placed when it is desired to produce a "grained" effect in the background of the halftone or line engraving. The plate is laid face up and mechanically dusted with a bituminous or resinous powder, like the topping powder or dragon's blood, which becomes an acid-resist when melted or burned in.

Grangerize. To illustrate a book with extra photographs or other prints taken from other books; usually to mutilate many other books to illustrate one book. So called after Rev. James Granger, an English clergyman, who, about 1750-1770, made a biographical history of England in this extravagant manner. The practice is indulged in more or less by persons interested in particular subjects.

Graphic Arts. A comprehensive term, meaning painting, drawing, engraving, printing, lettering, writing, and other arts using lines or marks on a surface, as distinguished from sculpture, music, etc.

Graphite. A form of carbon, iron-black to dark gray in color; found in rock formations in various parts of the world, and also made artificially in a furnace by the conversion of coke and other uncrystallized carbon. Graphite is the "lead" in lead pencils; it is used for commutator brushes in electric motors and dynamos, as a lubricant for machinery, etc. Electrotypers use fine powdered graphite to cover the wax mold and the molding form; it permits the wax and type to separate smoothly after the impression is taken, and the graphite is an excellent electrical conductor on the face of the mold in the depositing vat. Also called *plumbago*.

Graphotype. (a) A kind of chalk-plate engraving method. (b) Also a machine for producing raised letters on a sheet of thin metal. See *Addressograph*.

Grasshopper. A slender finger or contrivance fixed beside the feed guides on a cylinder press to hold the edge of the sheet smoothly in place until the gripper gets its firm hold. Grasshoppers are attached to a horizontal rod which moves them up out of the way while the sheet is being fed to the guides, then drops gently on the sheet and rises again in time to allow the sheet to move away with the grippers.

Grave Accent. A mark of this shape ` placed over a vowel. In English composition it is used as a diacritical mark in dictionaries, glossaries, etc., and as part of the spelling of some words from foreign languages.

Graver. An engraver's tool for cutting, chasing, etc. See *Burin*.

Graveyard or **Morgue.** The place or cabinet, near the composing room or editorial room of a newspaper where engraved plates or reproductions of famous persons are filed away and systematically numbered and indexed. When a prominent person dies suddenly, his likeness is "resurrected" and, together with a short biographical sketch and a news story, is published in the paper.

Gravure. A French word, meaning cutting or engraving; used as a combining word, like photogravure, rotogravure, etc.

Great Primer. A size of type nearly equivalent to 18-point; two-line bourgeois. See *Type Sizes*.

Greek Fret. A style of ornament much used in Greek art, characterized by angular alternations and interlocking lines in various patterns. It is a common motif for typographic borders, etc.

Green. An inking roller said to be green when it is new; if not properly seasoned it will remain green, and in warm, damp weather will cause trouble by not taking up and distributing ink properly. See *Roller*.

Greeting Card. A card used for a printed message, as a Birthday, Christmas, or Easter card.

Grippers. On the job presses, the iron fingers attached to the platen to keep the sheet in place and take it off the type after the impression; on cylinders, the short curved metal fingers attached to an operating rod which grip the sheet and carry it around the impression. In this latter connection often called *nippers*.

Gripper Cross-bar. A slender metal strip extended between the grippers of a job press, to hold the sheet firmly on the tympan, and thus avoid a slurred impression, or to pull the sheet from the form when the regular upright grippers cannot be placed to do this in a satisfactory manner. It is an extension of the gripper finger plan for holding the sheet while printing unusual forms.

Gripper Finger. An extra attachment to the gripper of a job press, for the purpose of holding the sheet firmer on the tympan while printing and pulling the sheet off the form after the impression.

Gripper Margin. The edge of a sheet that is caught by the grippers on a cylinder press. The gripper margin of the form is that nearest the grippers when they carry the sheet around to be printed. Also called *gripper edge*.

Gripper Perforator. An attachment to a job press platen for perforating the sheets of paper at the same time that they are printed. It is attached to the gripper frame and makes the perforations in the sheet by pressure from a high blank part of the form against a strip of zinc or hard surface on the tympan. The perforating points are covered by a thin strip of spring steel with holes through which the points pass; when making the impression this spring is depressed and then pushes the perforated sheet off the points after the impression is made. See *Perforating*.

Ground. In etching, the covering or coating on the plate, which is a substance that is impervious to the action of acid, is called the *etching ground*.

Ground Block. A block to print a tint of flat color, upon which another color is to be printed later; a tint block.

Ground Wood. A paper pulp made by mechanically grinding the wood against a grindstone; in distinction from pulp made by cooking or digesting wood chips in a solution of soda or other chemicals. Wood pulp paper is of a low grade, like newspaper. Also called *mechanical wood pulp*. See *Paper*.

Guards or Guard-lines. (a) Strips of metal, type-high or slightly higher, placed around type forms that are to be molded for electrotyping, sometimes called bearers. They serve to hold the wax from spreading too quickly around the outside edges of the form when molding, thus securing a mold of even depth; and the resulting high lines on the plate later protect the edges during the finishing operations. See *Electrotype*. (b) In bookbinding, guards are strips of paper inserted in the backs of books for plates to be pasted on.

Guard-line Proof. A proof showing the heavy electrotype guard-lines around the page; a foundry proof.

Guarding. In bookbinding, the tippings of cloth or paper to printed illustrations or plates, usually on special paper, and then tippings or folding the end around the adjoining signature; folding plate pages together to be sewed as a signature.

Gudgeons. Small polished metal wheels which are slipped over the ends of roller-stocks on platen presses. The gudgeons are keyed to the stocks, and thus cause the rollers to rotate as they pass over the margins of the press. On other machines, a gudgeon is a metal pin or bolt fastened in the end of a driving shaft or axle, and forming the journal upon which it turns.

Guide. (a) An arrangement for holding the sheet of copy on the upper case. It may be a simple piece of reglet or slug held by a string, or a more elaborate affair such as is furnished by supply houses. It is useful when the sheet of copy is large, with much small writing or figures in tabular form, as it helps to indicate, without loss of time, the place at which the compositor is setting, but for ordinary copy a guide is likely to be more bothersome than useful. (b) Feed guides or gages, to place the sheets against, are fastened on the tympan of job presses; cylinder presses, folding machines, etc., also have guides against which the sheets are fed, so that the printing, folding, or other markings may be in exactly the same place on each sheet. See *Gage-pin*, *Register* and *Copy-holder*.

Guilloche (*pron.* gwi-losh'). An ornament formed by two or more intertwined bands or strings; an ornamental braid or rope; a classic form of decoration in common use.

Guide-line. (a) Used as a verb as well as a noun. In newspaper copy-marking or preparation, a word or two words at the top of each page of a story, and also at the top of each page of a new *lead*, an *add*, *insert*, or *follow*, and above each line cut for the story to which it refers. The guide-line aids the copy-cutter and typesetters in keeping each story together, and the make-up man in properly assembling the different parts of a big article with all its heads, subheads, and illustrations. (b) A guide-line is set in type and placed at the top of each galley, like Dictionary—gal one—A, or Gal 15—Dictionary—C. See *Slug*. (c) In proofreading, a guide-line is sometimes drawn from the place in the text where an error occurs to the margins of the proof, in order to facilitate in making the correction.

Guide Book. A book or pamphlet containing information for travelers, tourists, sightseers, etc.

Gum Arabic. A gum obtained from either of two species of Acacia trees, used in the lithographic and other branches of the graphic arts industries. There are a number of different gum arabic varieties which are known in commerce under the various names, Turkey gum, Egyptian gum, etc. The inferior varieties, as Gedda gum, Mecca gum, India gum, etc., vary from yellowish to brownish-red.

Gummed Paper. This is made in a variety of colors, usually of strong quality, for labels, poster stamps, etc. It is gummed in large sheets before cutting or printing. The common kinds must be handled very carefully or they will be troublesome to feed into the press because of the tendency to curl up when exposed to warm air. An improved kind of gummed paper, called non-curling, has been introduced to the trade, which overcomes the difficulties of curling sheets.

Gum Tragacanth. A marbling size used as a filler in marbling books.

Gumming Out. In lithography, the application of the gum solution to parts of the surface of the stone or plate to prevent the transfer from combining with the surface. See *Stopping Out*.

Gumming Up. The application to the lithographic stone or metal plate of any one of the several solutions of gum used in preparing the surface.

Gutenberg Bible. This is believed to be the first book printed with movable type. Only a few copies are known to be in existence now, and these are highly prized. It was printed by John Gutenberg and his associates about 1450.

Gutter. The blank space which gives the back, or binding margin of a book sheet. Each page of a book or pamphlet has a top margin, an outside margin, a foot margin, and back or gutter margin. Gutters are so called because originally the pieces of wood used for these places had a gutter or rounded channel cut in the top surface to prevent it from receiving ink from the roller when the inking of the form was done. Compare with railroad or reversible furniture. See *Imposition*.

Gutters or Gutter Margins. The space between pages of type or electrotypes as they lie in the chase which produces the blank or unprinted margins at the back or inner edge of the leaf. The other margins are called *front* or *outer*; *head* or *top*; and *tail* or *foot* margins.

Guttersnipe. Small hand-bills and other advertisements pasted on the pavements, along the edges of gutters, etc. A method of advertising now obsolete.

Gutter Sticks. The furniture used to make the back margins of book pages.

Gyroscopic Camera. A motion picture camera resembling in principle the gyroscopic steering device used on ocean liners and the gyroscopic stabilizer on big airplanes to keep them on an even keel. The complete equipment is about as big as a Pathe camera, and because of the gyroscopic mechanism no tripod is used. The operator straps the camera over his shoulders. An electric motor dispenses with cranking, leaving the operator both hands free to focus and to point the camera on the business of the scene he is photographing. The electric current for the motor in the camera is supplied by a flexible cable which is paid out by an assistant, as required. Because of the gyroscope in the camera, which offsets the movements of the man carrying it, it is possible for a cameraman to follow a player completely around a set without any rearrangement of the lights, or a new set-up of the camera, as is customary when a camera on a tripod is used.

H. In typesetting, the capital H and lower-case m are first made to line at the bottom, and the position of all other characters fixed by these standards—the H determining the height of all tall letters, and the m the height of the body-part of the small letters. For this reason, the typesetters require a sample H and m of fonts for which extra letters or sorts are ordered. The adoption of the new uniform lining systems, known as American Line, Standard Line,

Uniform Line, etc., by which all type faces of certain classes on the same body are cast to line exactly with each other, makes this requirement unnecessary when ordering sorts of these "lining faces."

Hacker Plate-Gage and Rectifier. A machine for correcting inaccuracies in the height of printing plates. It makes provision for measuring mounted or unmounted printing plates under press pressure without injury to the surface of the plate. Measurement is made by applying pressure of a $4\frac{1}{2}$ -pound weight multiplying itself through a fulcrum device. A pressure of 200 pounds, or what has been established as the normal pressure of a cylinder press in one inch of its printing line, is applied through the circular fiber disk which comes into contact with the face of the plate. Above the fiber disk is a clock-like micrometer dial on which a clock-hand pointer registers in thousandths of an inch, or less, the error in the plate from standard type height—.918 of an inch. To measure a wood-mounted plate, the weight is raised and the plate laid upon the 12 x 12-inch table. The correct procedure is to raise and lower the weight until the lowest spot is located and then by applying the underlay first to the lowest spot and until the plate gives the same measurement in the entire area of its surface. If, after the plate is level, it is still low, a sheet of paper of sufficient thickness is applied to bring the plate to the required printing height. To measure unmounted or 11-point plates a false aluminum bed is provided which fits over the bed proper. When not in use it is stored in a compartment in the cabinet which encloses the device. To measure and rectify the plate the same procedure follows as outlined for rectifying mounted plates. At the left-hand rear corner of the table are two steel arms (one above the other and designed to swing independently), having precision-ground gages at the ends which swing from a position at the rear of the table to a position directly under the fiber disk. The lower gage is .759 inches high; the upper one .159 inches. Together they are .918 inches and serve as a means to set the dial correctly to cause the pointer to register at zero when the fiber disk rests, with pressure, on the standard gages. The upper gage of .159-inch thickness is to be used when the false bed is in place for work on unmounted plates. When pressure is applied to any plate the pointer will instantly come to rest somewhere to the left of zero if the plate is under .918 inches; if over that height, the pointer will register somewhere at the right of zero. This device for measuring the height or thickness of a plate at any point, even though it may be of large dimensions, enables the operator to establish the error which must be compensated for and apply underlay or overlay to level it and adjust it to the desired printing height.

Hair Spaces. Very thin spaces, less than the five-to-em in the smaller sizes of types; for large sizes pieces of leads and cards are used for hair spaces. Copper and brass spaces, one-half point and one point in thickness, are made for sizes of 6-point and larger. Hair spaces greatly facilitate the work of letter-spacing and justifying, but they

are sparingly provided in the average composing room because very few compositors will care for them properly. See *Copper Thin Spaces*.

Hairline. Used to describe any very fine or delicate line in type, brass rule, or engraving; commonly applied to any character which is very light throughout.

Half Binding. When a book is covered with leather on the back and corners and the sides covered with cloth or paper; half morocco, half russia, half calf, etc.

Half Case. A type case half the regular length, or about 16½ inches.

Half or Twin Chase. One of a pair of chases which are to be used together, as on the flat bed of a cylinder press. They are usually made with the sides which lie together thinner and a little higher than the other parts. Sometimes one chase will have projecting pins which fit into notches of its mate. See *Chase*.

Half-diamond Indention. When successive lines are indented at both ends, each one being shorter than the preceding line.
like this paragraph; common in title pages.

Halfstuff. In paper-making, the pulp after it has been washed, broken, bleached, and drained, before it goes to the beaters. Also called *half-stock*.

Half-sheet. When a book form is imposed so that all the pages of a signature are in one form; an impression being made, the sheet is turned and another impression made on the back, thus making two copies on one sheet; when cut in two, each half-sheet contains an impression of all the pages in the form. This is the most common method of imposition, as it permits of more certain register, and errors in imposition or margins are more readily discovered. Also called *work-and-turn*.

Half-sheet Poster. A poster measuring 21 x 28 or 14 x 42 inches in size. See *Poster*.

Half-title. The title put at the head of the first chapter of a book; now often applied to the bastard title, or brief title which precedes the main title page of a book.

Halftone. An engraved plate made by photographic and chemical methods, in which the surface or printing part is composed of a series of fine dots. A halftone process plate is made by photographing the picture through a screen interposed between the copy and the sensitive plate in a camera. This screen is placed near the plate and, the light passing through it, the object on the negative is broken up into a mass of minute squares, or dots, which are larger or smaller as the corresponding parts of the copy are darker or lighter. This screened negative is then placed beside a polished, sensitized copper plate, and after exposure to light it is further developed and manipulated so as

to protect the dots from the action of the acid with which it is afterward etched. After the etching is completed the plate is trimmed and mounted type-high on a wooden or metal base; or its edges are beveled so that it may be attached to a sectional metal block. See *Halftone Screen*. The first practical halftone relief plate making process was the invention of Dr. Frederick E. Ives, when he had charge of the photographic laboratory at Cornell University, and the first commercial operation of the process was in Philadelphia in February, 1881.

Halftone Paper. A highly calendered book or other paper suitable for impressions of halftone cuts.

Halftone Screen. The "dots" of a halftone, which are mechanically made substitutes for the grains in the tones of the original copy, are produced by photography through a mesh or grating called a "halftone screen." It is thus described in "The Process and the Practice of Photo-Engraving:" "The halftone screen is a very accurately made grating or mesh which consists of two pieces of clear, finely polished glass, each piece being about one-eighth of an inch thick, and ruled with parallel lines. These rulings are first cut in a special resist and the lines are then etched into the glass and filled in with an opaque substance, and then both pieces of glass are cemented together with balsam, the rulings on one glass set at exact right angles to the rulings on the other. This produces a grating of crossed lines, leaving transparent square apertures. The area of each aperture is approximately the same as the area of the intersection of any two black lines. This relation can vary slightly in different screens, but the correct relation is 50 per cent black and 50 per cent transparent. Halftone screens are made of optically clear glass and it is quite essential that they be free from any imperfections which might distort the image or in any way prevent its perfect reproduction. The screens vary in size and in the number of rulings to the inch. The usual number of rulings to the inch on different screens is 55, 65, 85, 100, 110, 120, 133, 150, 175, 200, 300, 400."

Hamilton Job Case. A full-sized type case for holding only capitals, and figures, in which the boxes are enlarged to twice the usual width; made by Hamilton Manufacturing Company, of Wisconsin.

Hand. The index mark  is sometimes so called. Also called the fist.

Handle-bar. The bar or lever ending in the handle on a hand press.

Hand-bill. A small printed advertisement or notice, usually on common news or book paper, and intended to be passed to persons on the street, left at doors, or posted on walls. See *Dodger*.

Handbook. A reference book of convenient size; a handy guide-book.

Handcock Page Tie-up. A device for tying up pages or jobs of type matter. It consists of an angle-plate to fit the outside corner of

the page; a stout flat tape fastened to one end of the angle is drawn around the page once and the end inserted in the clips of the plate, the tape fitting snugly enough in the clips to hold the page securely.

Hand-folding. Folding which is done by hand, in distinction of machine-folding.

Handful. A quantity of type which is taken in the hand at one time without being tied up with a cord, when distributing or making up; usually three or four inches of a column or small page.

Handgravure. A method of copperplate printing. After inking and before each impression is taken, the surface is wiped by hand.

Hand Inker. A hand roller for inking type. When printing was done chiefly on hand presses, many contrivances were invented whereby the inking could be done by the man who operated the press, in order to dispense with the second man or boy. These contrivances were usually frames or stands on the side opposite the pressman, and held by two or more rollers with ink distributed across them which could be pulled back and forth over the face of the form; later devices enabled them to be worked automatically, as when the bed of the press was rolled out, a pulley was wound which caused the roller to pass over the form when the frisket was raised. See *Brayer*.

Hand Letters. Types fixed on handles, to be stamped by hand, used by bookbinders; they are usually made of brass, because they must be heated for gold stamping.

Hand-made Paper. That which is made entirely by hand, in distinction from paper made by machinery. The slow and tedious process of making paper by hand renders it too expensive for ordinary use, and it is chiefly employed for choice work in small quantities. It is made smaller than the machine-made product, is of stronger quality and rougher surface, and has deckle edges.

Hand Press. The style of press upon which all or nearly all the operations are performed by manual labor. It was the first form of printing press, and consisted of an upright frame between the posts of which a plane surface (the bed) with the type form upon it, was placed; above the bed was another flat surface, face down, which was operated by a screw or contrivance of levers, by which the impression was made upon the face of the type. The early hand press was made entirely of wood; later a stone was used for the bed, and the bed was made to move in and out under the platen, or impression surface, to facilitate inking and putting on and taking off the sheets. About the year 1800 Lord Stanhope, an Englishman, made several improvements in the hand press, substituting iron for wood and arranging a series of levers by which a stronger impression could be made with less labor. Since then many varieties of hand presses have been made, and several, styles of iron machines are in common use for pulling proofs and similar work in printing offices everywhere.

Hand Roller. See *Hand Inker* and *Brayer*.

Hand Sewed. In bookbinding, a book that is sewed by hand and not by machine.

Hand Starter. A starting device for electric motors operated by hand and not by push-button.

Hanging Indention. That form of paragraph which is set with the first line full length and subsequent lines all indented, as here shown; usually employed in dictionaries, catalogs, price lists, etc.

Hangs Together. Said of a piece of composition in which the leading and spacing are well balanced.

Hard Paper. That which has a hard, smooth surface, mostly writing paper, which, because of its sizing, is harder to print upon than ordinary book paper; it requires a special ink and a stronger impression.

Hard-fiber Paper. Specially treated paper used as a base in the manufacture of various kinds of vulcanized fiber and converted by chemical or other processes.

Hard-sized. In paper-making, material which is sized by a special hardening process due to the increased proportions of rosin or other ingredients.

Hard Packing. In making ready a form on the press, the sheets of paper and cardboard which cover the platen or cylinder may be hard or soft according to the nature of the work. Thus engravings, new type faces, etc., on smooth, dry paper are printed from hard packing in order to give sharp clear impressions. Soft packing is employed for forms containing a mixture of old, worn type, stereotypes, and for work which must be hurried like newspapers, and posters. See *Making Ready*.

Harmony. In art, a state of completeness in the relationship of things to each other. *Shape harmony* will exist when masses similar in contour or shape are used to form a type design. *Tone harmony* results from the use of tones in design which carry a feeling of relationship.

Harris Automatic Press. The Harris offset press is designed to permit easy access to any part, and can be run at a speed of between 3,000 and 4,000 impressions an hour. The automatic feeder is built into the press, not attached to it. Harris presses are made in five sizes: No. 31—22 x 34; No. 33—28 x 42; No. 34—36 x 48; No. 41—38 x 52; and No. 44—44 x 64. The 36 x 48, 38 x 52, and 44 x 64 sizes are also made in two-color styles. The three cylinders—plate, blanket, and impression, are of a correct size for fast production, offset results being largely a matter of correct diameters. First, all strains and all possibilities of irregular contraction and expansion are exhausted from the metal. Secondly, a grinding process follows which further obviates swelling or receding of the metal in spots in the cylinder which might

result from the difference in thicknesses of metal around the periphery of the cylinder. Then, after these precautions have been taken, a gearing system is built into the cylinder system so that all possibilities of gear-streaking or creeping are eliminated. The plate cylinder is fitted with clamps for the quick and easy placing of the plate, or for its quick removal. The blanket cylinder incorporates a reel rod for the retaining of the rubber blanket. The impression cylinder has built into it small grippers which function with split-second precision, grippers which partly account for the accuracy of register. This impression cylinder is not covered with a rubber blanket. The bearings of the plate cylinder are fixed; those of the blanket and impression cylinder are retained in eccentric devices which permit adjustment to accommodate various thicknesses of paper or of cardboard. On the later models of presses this adjustment is by micrometer screw with graduated indicator to specify the particular setting. It is through this eccentric system that the cylinders separate automatically should a piece of defective paper be encountered in feeding or should the feed pile be exhausted. In the ink distributing structure, the color is worked, reworked, and broken up thoroughly before it is passed to the plate. On the No. 41, for example, the system is made up of 26 parts—four leather form rollers, four intermediate rollers, five distribution rollers, one ductor roller, six steel riders, one upper and one lower interrider roller, one iron vibrating drum, two steel vibrating storage rolls. The inking ratio is 6.7 to 1. The inker is driven independently of the plate cylinder and the vibrating mechanism is driven from a different set of gears than the rolls and the drum. When the press trips, the cam on the plate cylinder raises the throw-off mechanism, the storage roll lifting and carrying with it two forms roller on each side. The moistening arrangement fundamentally consists of five parts—two moleton-covered dampener rollers, one moleton-covered ductor roller, one brass water roll, and one intermediate water roll. Drive is independent of the plate cylinder. No part can rust, as it is built entirely of brass. The feed can be stopped by hand or automatically, as when the press is tripped. There are two water fountains on the two-color presses. The feed-table is accessible for loading. It automatically maintains its correct feeding height as sheets are fed from it. By combing, and separation by air blast, one sheet from the pile is engaged by the three front sucker-tips which carry it forward to a track of positively driven steel rollers. These carry it swiftly and carefully down to numerous stops just in front of the impression cylinders. Here it stops and is registered sidewise by a push-side register which has adjustments for changing the position of the push-guides up to one-quarter inch each way from neutral position. At precisely the exact moment, the stop pins recede, the sheet is engaged by the feed rolls and overfed to stops on the impression cylinder grippers as they come around for the sheet. The speed with which these rolls "whip" in the paper is always faster than the periphery speed of the impression cylinder. This means that the sheet will hit the stops in the impression cylinder before it is secured by the grippers, causing it to be accurately

registered lengthwise, regardless of the press speed. The sheet, held by the grippers, is then rolled around the impression cylinder, contacting with the blanket and receiving the inked impression from that blanket. It is then delivered to grippers on a chain delivery system and carried to the delivery pile, printed surface up, and at a convenient height for trucking away or for reloading into the feed end of the press again. The delivery space is equal to the full-pile depth. The motor power required for these presses varies from 3 HP for the single-color 22 x 34 press up to 15 HP for the two-color 44 x 64. Drive is by belt. On some models, a hand wheel enables the operator to turn over the press by hand in case no push-button is provided. On the big machines, no clutch is provided. They cannot be turned over by hand, consequently no hand wheel is used. Wherever possible, push-button control should be used.

Harris Rule Case. A popular style of case for holding small assortments of labor-saving brass rules; it is quarter the size of a regular case, and four of them will set into a blank case. Because of its small size it is convenient to carry from one place to another, or to lay on the compositor's stand while he is using it.

Hat-tip Press. A small hand press with facilities for heating the bed and form, which in this case are above the platen, used for gold-leaf work on leather and fabrics. It is known as the Taylor Press.

Half-point. One one-hundred-and-forty-fourth part of an inch. Typefounders furnish brass of that thickness for close leading.

Head. The top of a page or book, or the title of an article in a newspaper, etc.

Headband. The piece of silk or cotton used to give ornamental finish at the top and bottom of the back of a bound book.

Head and Tail. The top and bottom of a book page.

Heading Chase. A long, narrow chase used for locking up blank-book headings and similar work.

Headline. The top line or title of a newspaper or book page; the heading of a notice or article. Headlines, in paper-ruling, are lines ruled in two or three colors, made by triple and quadruple pens about $1\frac{1}{2}$ inches from the top of the sheet.

Head-piece. The ornamental panel or picture placed at the top of a page in a book, usually at the beginning of chapters, where the open space left by the sinking of the heading is utilized for decoration. Head-pieces, tail-pieces, and initials are used to give variety to the text of plain type pages; stock patterns and conventional designs are common, although many works are now decorated with special designs appropriate for the text. The most pleasing effects are obtained when the head-pieces, tail-pieces and initials, of a book are uniform in style and not too prominent or obtrusive.

Head of the Sheet. In presswork, the edge of the sheet which is fed to the lower guides. The corresponding part of the form is the *head of the form*.

Head to Come (*abbrev.* H. T. C.). When a story is ready, or is on hand before the make-up is determined, it is frequently sent to the composing room and marked *head to come*. This guide-line is also placed at the top of each galley of type.

Heap. This term is often applied to the quantity of white paper given at one time to the pressman to print.

Hectograph or Hektograph. A copying process for multiplying written or printed copies by means of a sheet of gelatine. The writing is done on a sheet of paper with copying ink; this sheet is then laid face down on the gelatine thus treated, which receives the ink; when fresh sheets are pressed upon the gelatine now, the writing is transferred to them, and copies are thus made till the ink is exhausted; twenty to a hundred copies may be made from one prepared pad. See *Gelatine Printing*.

Height-to-Paper. The height of a type compared with its mates. Typesetters in this country have a standard for height-to-paper which is .918 of an inch; but many causes interfere, during manufacture and afterward, which make variations from this standard quite common. Types made at different times, or from different molds and matrices, or because of differences of temperature at casting will often show inequalities in height; types which have been copper-faced or nicked will be slightly higher because of the additional film on the original face; old or worn types when used with new will be lower. These and other causes tend to make the face of a form composed of many kinds of types and engravings more or less uneven and add greatly to the work of making ready on the press. See *Making Ready*.

Heliotype Printing. A method of printing from a gelatine film upon which the picture has been transferred by photography. From an ordinary negative is made a positive from which a direct impression in ink can be made on a printing press. See *Gelatine Printing*.

Hell or Hell-Box. The box or receptacle into which the broken or discarded type is thrown; sometimes the *old shoe* or *boot*.

Hemp. See *Manila Hemp*.

Hempel Quoin. A metal quoin used for locking up forms for printing. It consists of two wedge-shaped pieces which fit into each other so that when they are moved laterally by means of a key the thickness of the quoin is increased. It was invented by Henry A. Hempel about 1878, and has since been generally used in all American printing offices.

Hens. The end pieces of the brace ; the middle piece is the cock.

Hiatus. An omission or defect in written or printed text, where some part is lost or effaced.

Hieroglyphics. Sacred characters; originally, the picture-writing of ancient Egyptian priests. In modern use, any character which has, or is supposed to have, a hidden or mysterious meaning.

Hickok Ruling Machine. A well-known paper-ruling machine, which has been on the market since 1844, made by the Hickok Manufacturing Company, of Harrisburg, Penn. The machine comes in many different styles and sizes, all of which employ metal pens of special shape as the ruling devices. Briefly, the main parts of the machine consist of a metal and wood framework, with feed-boards; beams, blankets, pen clamps and pens, ink fountains, lay-boy or receiving-chutes, automatic feeding apparatus, and striker. The last two are attachments. The striker is a device that enables the pens to drop and lift at desired lengths; it has a gate, an iron rod with finger blades near the first beam, and when connected with the gears at the side of the machine, it rises at intervals to release the paper. The cam-wheel is on the right (as the sheet passes in) of the machine and consists of two slots which are filled with cams to raise the pens where ruling is not desired. (A double-beam machine has two such wheels, a triple-beam, three.) As the sheet leaves the feed-board it is gripped by cords and is held to a blanket or cloth which revolves continuously around rolls or cylinders; it is carried to the striker, where it receives its ruled lines in one or several colors, heavy or faint, by coming in contact with the inking pens; finally it passes to the receiving chutes or lay-boys. With the modern ruling machine sheets can be ruled two ways on both sides at one feeding. The ordinary ruling machine occupies about $6\frac{1}{2}$ x $11\frac{1}{2}$ feet of floor space.

Highlight. The lightest or whitest parts in a picture, represented in an engraved plate by the finest dots or by the absence of all dots or lines.

Highlight Stop. The size of the opening in the highlight stop will vary according to the fineness of the screen used, but for an ordinary subject with a 120-line screen it would be about one-half inch in diameter.

High-to-Line. When a letter or word is above the line of its fellow; **like this** is low-to-line.

High Spaces, Quads, and Leads. Used in type composition when it is to be electrotyped; they are nearly as high as the shoulder of the type and thus leave no small holes (as in the case of ordinary low spaces and quads), into which the molding wax finds its way, to render good molding difficult. Low spaces, quads, and leads are necessary when the type is to be printed from direct, and much electrotyping is done from forms thus set; but for fonts of type which are to be used exclusively for electrotyping, such as books and periodicals of large circulation, high spaces and leads should be used.

Hoe Press. Presses made by the celebrated New York firm of press makers established by Robert Hoe, an Englishman, who came to this country in 1803. The first kinds were hand presses, then cylinder presses, which were developed to a marvelous degree and made in a variety of styles, including lithographic offset presses, from the single cylinder form to the modern web perfecting machines employed on metropolitan newspapers. The double octuple and color combination press is formed in two octuple sections which may be operated individually or together, and which deliver their product of neatly folded newspapers, all counted, from opposite ends to the middle of the press. Immediately to the right of the paper roll is the ink trough in which there is a composition roller that picks up the ink in a thin film. An oscillating roller periodically touches the roller in the trough and transfers a small amount of ink to a series of rollers which vibrate longitudinally and spread the ink uniformly over a large roller. This in turn transfers the ink to a pair of form rollers which deliver the ink to the printing surface. The question of proper and even ink distribution is a most important one, and it is for this reason that such a large number of rollers is required to carry the ink from the trough to the plate cylinder. The stereotype or electrotpe plates are secured to the plate cylinder and the paper is pressed against them by an impression cylinder. This places the printing on the upper side of the web. The paper web then passes under a second impression cylinder which presses it against a second plate cylinder so that the reverse side of the paper is printed. This second plate cylinder is also linked by a series of rollers. The paper web then proceeds to the folder. In the same way all the other webs are printed. Each plate cylinder is wide enough to take four stereotype plates of newspaper page size, and as a plate extends around only one-half of the cylinder, there are eight plates on each cylinder. Thus, there are eight impressions on each side of each web, or 64 page impressions in all, with an additional impression in color on the under side of the lowest web. The same is true of the other section of the press, so that we may have 128 impressions at a time. This does not mean that a single paper of 128 pages is printed, although this could be done. However, the two sections are usually used as duplicate machines to double the output. Each section is provided with two folders. The paper web is slit by a revolving knife blade, so that the papers as they come from the machine in each section consist of two parts of 16 pages each. If desired, however, the web after being slit in two can be carried over to a single folder so that a 32-page section will result. First the web is carried over a form that folds it lengthwise, then it is folded crosswise, cut, and dropped on a traveling conveyor. A special counting mechanism pushes every fiftieth paper a little farther out, so that an accurate count of the number of papers may be had. When it is desired to use more than one color, the bottom web may be carried up through the cylinders above it, and they may be inked with color. In fact, a single web might be run through all the cylinders of the section, receiving eight different color impressions. When printing several colors, and when printing fine half-

tone work, it is necessary to prevent offset of color on the impressions and rolls and transfer of this color back upon the paper. This is prevented by the use of a roll of thin offset paper. It will be understood that the second web from the ground is not running and that the bottom web is running through the second row of cylinders to take on extra colors, then the offset paper runs around the second impression cylinder just beyond the first plate cylinder and is rolled up again on a take-up roll. In a large machine of this character, the main problem is to supply the press with paper. The cylinders revolve at about 300 revolutions per minute, which means that the paper travels at the rate of nearly 14 miles per hour. In fifteen minutes the big paper rolls are entirely consumed. Just before this happens the press must be stopped and paper from new rolls pasted to the ends of the webs and then the press is run slowly until the pasted joints have passed through. One hundred and eight miles of paper six feet wide are used each hour. This quantity of paper weighs about eighteen tons. The capacity of the press is 300,000 eight-page papers per hour or 75,000 32-page papers per hour. When running the machine as a color press, it will print 50,000 24-page papers per hour with two outside pages in three colors and black. The machine is 48 feet long and 19½ feet high, weighing altogether 350,000 pounds.—*Description, in part, taken from Scientific American.*

Hollander. A name given to the rag-washing machine in a paper mill; also called beating machine. These washers were invented in Holland about 1750. The Hollander consists of a tub fifteen feet long with oval ends, in the center of which is a vertical partition or "mid-feather"; a shaft runs across the tub at its center and upon it is a heavy roll four feet in diameter, which has about fifty knives fixed on its surface parallel with the shafts. The roll revolves directly over a stationary set of knives placed in the bottom of the tub and known as the bed-plate, against which the roll may be lowered with great accuracy by a wheel and screw. The washing machine is also provided with a washing cylinder or drum washer which is so made that as it revolves it scoops up the water which flows through its axis—the rags being kept back by a screen of fine wire cloth with which the drum is surrounded. The rags are now put into the washing engine, and an abundant stream of pure filtered water is introduced continuously, the roll being raised so that the rags pass around freely without being beaten into pulp, as otherwise the dirt would be ground into the fibers. The dirty water is removed by the drum washer and the rags are rapidly cleansed. The roll is now lowered gradually and the rags slowly mascerated, losing the character of textiles and becoming single fibers of varying lengths. When the washing is complete, the supply of water is cut off and the beating process continues a while longer until the pulp reaches the stage called "half-stuff."

Holograph. A document, as a letter, or deed, or a will, wholly in the handwriting of the person from whom it proceeds and whose act it purports to be.

Hollow Quads. Large sizes are sometimes cast with hollow parts to make them lighter and economize the metal. See *Quotation Furniture and Quotation Quads*.

Hook-up. The end of a line that is turned over and bracketed into the end of the line above, as in hymn-books and poetry set in narrow measure.

Horn-book. A contrivance which existed before the invention of printing and which was designed to provide an indestructible school-book for boys. The horn-book was a small broadside, printed from wood blocks, made up of the alphabet at the top, in capitals and small letters, a list of the vowels, a number of the commonest syllables, and the Lord's Prayer. This single leaf was set in a wooden frame, fashioned with a handle at the bottom like a lady's hand-glass. In the handle there was a hole for a string so that the horn-book could be slung to the boy's belt. Covering the printed sheet and protecting it from the boy's destructive finger-nails, there was a plate of horn shaved down thin enough to make it perfectly transparent. Sometimes the printed sheet was simply pasted on the plate of horn. —(*American Dictionary of Printing and Bookmaking*.)

Horse. (a) An inclined table near the press upon which the old-time pressman placed the white paper to be printed. (b) The copy (frequently clipped from other papers) and the matter after it is placed in type that is used on newspapers to fill in pages for early-out-of-town editions of the daily and Sunday papers. It is of a miscellaneous nature, consisting of articles of various length to fit any space that may be left after insertion of a main article on a page. Horse matter is often killed after the first edition and is replaced with news reading matter that comes in later.

Hold for Orders or Hold for Release (*abbr.* H.F.O., H.F.R.). On newspapers the terms are used as variants in copy-making and as guide-lines, when a story is to be set into type for emergency use or for use at a future date. Many official Government documents or reports, speeches, etc., are sent out in advance by the press associations, so that they may be set in type and held in readiness when the order is issued telegraphically to "release" the story.

Horsing. To charge for work before it is done. A journeyman doing work for which he has already been paid is working for a dead horse.

Horsing It. To read proof without a copyholder, comparing the proof with the copy during the procedure, is called horsing it.

Hot Embossing. The method of embossing by means of heated plates or dies, as distinguished from embossing with cold plates.

House Organ. A weekly, fortnightly, or monthly publication, devoted to a review of happenings of local and general interest to a

business concern, and intended to advertise its products and promote the welfare of the employers and employees of the particular concern which has it published.

Hound's Teeth. Irregular lines and gaps of white space which may be traced between the words of several lines of a page. In careful composition these "white rivers," when distinct, are objectionable, and may often be avoided by a little respacing of one or more lines.

Huber Press. Several styles of this cylinder press were made—a single cylinder, a two-color, and a perfecting press—all built upon the two-revolution principle. In the two-color machine the sheet was printed in one color by one cylinder and passed to the second cylinder, which has a separate form and inking apparatus, for the second color; in this way type could be printed with one grade of color or ink, and a page border or halftone in a different ink on the same page, at a single handling of the sheet. In the perfecting machine the sheet passed between a cylinder and its type form on a flat bed for each printing. An apparatus was provided to prevent the set-off of the fresh ink from the first impression while printing the second side. These presses were named Huber-Hodgman Block Bearing Presses. The Huber-Hodgman Press Company was subsequently taken over by the Miehle Printing Press and Manufacturing Company, and the manufacture of these presses was discontinued.

Hubs. The hubs for spring-back books, such as full canvas, full duck, full moleskin, corduroy, full-bound ends and hubs, and three-quarter russias, are made of strips of straw- or binder's board. Some prefer to use leather-made hubs, claiming that they will not wear the leather through by constant friction on the desk. Leather hubs are made of leather scraps by gluing pieces together. The following widths are standard, with slight variations, in most establishments:

Size of Paper		Hub Size
Cap.....	8½ by 14 inches.....	½ inch
Demy.....	10½ by 16 ".....	⅝ inch
Medium.....	11½ by 18 ".....	¾ inch
Double Cap.....	14 by 17 ".....	¾ inch
Royal.....	12 by 19 ".....	⅞ inch
Super Royal.....	12½ by 20 ".....	1 inch
Double Demy.....	16 by 21 ".....	1⅛ inches
Double Medium.....	18 by 23 ".....	1¼ inches

Humanistic. The name given to a style of type designed by William Dana Orcutt and used at the University Press, Cambridge, Mass. The type is based upon the highest form of hand lettering ever attained, as shown in the fifteenth century Humanistic manuscripts in Florence. The principle on which the font is designed differs radically from that shown in modern type—namely, the ascending letters are short and the descending letters long. The designs of the letters closely follow those of hand work, there being several cuts of the

same letter, yet avoiding the inevitable slight irregularity of such work. The letters have a peculiar merit of retaining their individuality, considered one by one, yet sinking this in becoming parts of a word which seems as complete in itself as a logotype. The type is used exclusively for special editions of Humanistic volumes.

Humidity. Dampness, commonly said of the air; the amount of dampness or moisture in the air, relative to temperature, affects paper, ink, rollers, and other things in the print-shop.

Hydraulic Press. A powerful standing press in which the power is communicated very slowly to a piston by means of water injected by a force pump into a large cylinder in which the piston moves. This style of standing press is used in large book printing rooms, binderies, and other places where great and steady pressure is required. See *Dry Pressing*, *Standing Press*.

Hyphen. The short dash at the end of a line when a word is divided and part is carried over to the next line. It is also used to join compounded words. A number of hyphens spaced apart with quads were formerly used for leaders in indexes, price lists, etc. - - - - - Hyphens are not now approved for this purpose, but periods are used instead In ordinary fonts, the hyphen is of the width of a four-to-em space, and should not be confused with the en dash. See *Dashes*.

Hypotenuse Oblong. An oblong or shape of paper which conforms to certain geometrical proportions in length and width. Standard sheet sizes from which hypotenuse shapes may be cut, are 25 x 38, 32 x 44, and 33 x 46 inches; for cover paper they are 20 x 26 and 23 x 33 inches. One standard page size for catalogs, booklets, house organs, price lists, and circulars is $7\frac{1}{2} \times 10\frac{5}{8}$ inches, and a size for pocket booklets is $5\frac{5}{16} \times 7\frac{1}{2}$ inches. Among the many advantages of the hypotenuse proportions are these: The hypotenuse oblong enables one to reproduce books in smaller or larger sizes at a very slight expense, while otherwise the expense might be prohibitive. For instance: If the large book has the proper proportions and the size is, say, $7\frac{1}{2} \times 10\frac{5}{8}$ inches, the smaller book would be $5\frac{5}{16} \times 7\frac{1}{2}$ inches, which is the larger size folded once. Both would be of the same paper stock, 32 x 44, and since the proportion of length to width remains the same, the entire type composition and illustrations could be photographically reduced to seven-tenths of the original size and etched without any additional art work or any change in the arrangement. The covers for the hypotenuse booklet and catalog sizes cut without waste are from 23 x 33. The inside pages cut and fold without waste from 32 x 44 inches. In the hypotenuse oblong the mathematical ratio of the width to the length is as 71.42 is to 100 per cent, and this ratio is not changed by folding the sheet. The length divided by the width gives the multiplying factor, which is 1.4142. In order to determine the shape and size of a page when the short side of the page is known, draw a horizontal line of that length to represent it; then

draw a perpendicular line connecting with one end of it, of the same length so as to make equal sides of a right-angle triangle of which the hypotenuse is the third side. The length of this hypotenuse will be the exact length of the hypotenuse oblong desired. If only the long dimension is known, take half its length for a horizontal base, draw a perpendicular of the same length as this base, join the points, and the hypotenuse thus obtained will be the exact width of the hypotenuse oblong desired.

I. I and J, with their small forms i and j, were formerly regarded as the same letter, the I or i being used in many words where J or j are now employed. I being the simplest form of any written or printed character, it is often employed to represent the first of any number. In the Roman numerals I represents one, and in our common figures I slightly modified as to serifs is the figure 1. See 7.

Illuminating. The decoration of book pages and manuscripts with colors, especially in several colors and gilding. Initial letters, borders, head pieces, and pictures were in early times the subjects of elaborate and costly decoration in brilliant colors. When books were rarer than they are now and all work was done by hand, single volumes were illuminated and bound in sumptuous manner for wealthy patrons.

Imitation Embossing. Relief printing on which a powdered rosin of any color is dusted to give a raised effect in imitation of embossing or steel-die work.

Imitation Leather. A general term for any one of the many fabrics made to resemble the different kinds of leathers used in book-binding. These fabrics are known under several trade names, as *Fabrikoid*, *Keratol*, *Pantosote*, *Texoderm*, etc. Most imitation leathers serve a useful purpose when used as substitutes for real leather where cheapness in the binding is desirable, as they are more durable than the cheaper grades of leather.

Imitation Morocco. A leather for bookbinders, made from sheepskins which are colored and embossed to resemble genuine Morocco leather.

Imperial. A size of writing paper $21\frac{1}{2} \times 31\frac{1}{2}$ or 23×33 inches; book paper 22×32 inches; drawing paper, 21×31 inches.

Imperial Press. A platen jobbing press which had a moving platen and a stationary perpendicular bed, surmounted with an ink fountain, as in several other styles of job presses. Its distinctive feature was a second ink fountain with distributing rollers below the bed, from which the form rollers received a fresh supply of ink before their start back on their upward motion. This arrangement with three form rollers gave additional inking facility over the ordinary job press. The press is now obsolete. The name Imperial was given to a hand press used in England many years ago.

Imposing-Stone or Table. The table or flat surface upon which forms are locked up for the press. Formerly this was a polished stone set into the top of a wooden frame—and called simply a stone. Large composing rooms with modern equipment now have polished iron or steel tables for imposing purposes. See *Stonework*.

Imposition. The operation of laying a number of pages or parts of a form in such a manner that, when the sheet is printed and folded, the pages or parts will follow each other in consecutive order with proper margins. This part of the printer's work requires experience, skill, precision, and the ability to calculate closely. A printed sheet may contain a single page printed on one side, or two pages, one on each side; or it may, after printing, be folded once and have three printed pages and one blank, or all four pages printed; or it may be intended to fold twice into three leaves with six pages, or into four leaves with eight pages; and so on, with larger sheets and additional foldings. All these different forms require that the pages be placed in a different plan with relation to each other, as one may observe by folding sheets of blank paper and marking the blank pages in consecutive order, and then opening out the sheet. There are also variations in schemes of imposition, dependent upon the size or shape of paper, or the kind of press to be used, or whether one form will print one side of the sheet and the sheet turned to print the other side with the same form, or whether each side is to be printed with a separate form; and also in sheets of two or more folds, the variations that may be required because of difference in the manner of folding the sheet. With sheets of few pages, like those mentioned, the work of imposition is comparatively simple; but when many pages are printed at one time on large sheets and the sheets cut into sections after printing, each section to be folded separately, the problem becomes more intricate and the utmost care and study are needed to avoid mistakes and loss of time. Sheets folded by hand may have to be imposed in one way; the same pages, when the folding is intended to be done on a folding machine, must be imposed differently. Large sheets of thin paper may permit a number of sheets to have many folds and the paper will fold true and smooth; thick, stiff paper, may require imposition that will allow the large printed sheet to be cut apart and each part to be folded separately. Imposition includes also the preparation of duplicate forms to be registered to each other for printing in two or more colors. The making of required margins at the sides and top and bottom of each page, as well as the proper marking of signatures, the placing of register points, and other matters necessary to prepare a form for printing, come under the head of imposition. Diagrams of imposition, with particular explanations, etc., may be found in Volumes 20 and 25 of the *Typographic Technical Series*.

Impress. The process of making marks or impressions; the impression.

Impression. The pressure given by a form of type or a plate to the sheet of paper; also, the printed sheet—in the latter sense usually applied to engravings.

Impression Cylinder. The cylinder on a press which carries the packing and make-ready. See *Single Revolution Press* and *Roller*.

Impression Screws. The screws under the corners of the platen of a job press, by which the impression is regulated. On a cylinder press the impression is regulated by screws below and above the journal boxes which sustain the cylinder.

Impression Throw-off. A device now made a part of nearly all job presses, whereby the pressman or feeder can, without stopping the press, move the platen and bed apart slightly, so as to avoid making an impression on the form, in case of failure to get a sheet in place properly. On cylinder presses, it is an *impression trip*, operated by the feeder's foot, and serves to raise the printing cylinder slightly while the form passes under it.

Impression Sheets. Those placed around the cylinder or on the tympan, upon which an impression is printed in the operation of making ready on the press.

Imprint. The name, with or without address, of the printer on his work; usually placed inconspicuously, in plain, small type or in the form of a trade-mark or significant device.

In Boards. When a book is cut after the boards are in place to form the sides, it is cut in boards. When cut before the boards are affixed, it is out of boards with projecting covers. Most books are bound in the latter manner.

Inching. Causing the moving elements of a machine or press to act through an inch or a very small distance.

Incunabula. A Latin term signifying in the cradle. It is applied by bibliographers to books printed before the year 1500; the beginning of printed literature. These books are much sought for, and catalogs and treatises upon them are numerous. Most of them are in Latin and they are preserved in European libraries, although a number of copies may be found in this country.

Indelible Ink. Used mostly for marking purposes, as on cotton or cloth, which, when properly treated, cannot be effaced.

Indent. To put a blank before or after words in a line, as at the beginning of a paragraph.

Indentation or Indentation. Common paragraph indentation is to begin the first line in from the margin farther than the other lines. The usual indentation of a paragraph is one em quad of its own size at the beginning of the first line of the paragraph. If the lines are more than average length, this indentation is increased to one and a half ems,

or more. Thus, for any measure from twelve to twenty picas in 10-point, 11-point, or 12-point, one em of the type is sufficient; but for 5-point or 6-point type in a measure of eighteen pica ems, two ems of its own body will be needed. As a rule, wide-leaded and wide-spaced lines will need more than close-spaced solid matter. The indention should be enough to indicate the paragraph clearly, but not so much as to make the distinction unduly conspicuous. See *Hanging Indention*, *Half-diamond Indention*, *Diagonal Indention*, *Motto Indention*.

Index. (a) A table, arranged in alphabetical order, for facilitating reference to topics, names, etc., in a book. It is usually placed at the end of a book, but is sometimes in the first part. An index differs from a table of contents, which is always in the front of the book and states the chapters or subjects in the order in which they occur. (b) The character , called by compositors the hand or fist. It is furnished with ordinary Roman fonts, being one of the old-style reference marks. In some fonts right and left characters are furnished, and it is now made in a variety of forms for advertising, etc.

Index Expurgatorius. A list of prohibited books.

Indexing. In book-making, the operation of pasting cloth or leather tabs on the visible portion of the leaves.

Index Bristol. Usually a stiff and strong cardboard, sizes $22\frac{1}{2} \times 28\frac{1}{2}$, $20\frac{1}{2} \times 24\frac{3}{4}$, and $25\frac{1}{2} \times 30\frac{1}{2}$ inches; made in four basic weights—116, 140, 170, and 220 pounds to the ream; used for making index cards.

Index Cards. Cards made of index bristol, in sizes ranging from 3 x 5 to 6 x 8, ruled or plain. An index card, when properly filled out, discloses or shows something, and is used in office filing cabinets or for other record-keeping purposes.

India Ink. A deep black writing and drawing ink, used especially in drawings to be photographed for engravings. It is made of lamp-black and size, or glue, and received its name because it was first obtained from China through India.

India Paper. A very thin, yet strong paper imported from Europe. It is made by a secret process chiefly from linen rags, treated and blended with a superior grade of flax, hemp, and other materials. It has a silky, soft texture and takes ink nicely. It is said to be the most wonderful paper ever invented because of its thinness and strength. A thousand sheets measure less than an inch in thickness. India paper is used by engravers for fine impressions, for printing costly editions of the Bible, and dictionaries and encyclopedias. India proofs are made on India paper.

India Rubber Blanket. A sheet of cloth faced with rubber, used to cover the printing cylinder. It is used where quick make-ready is required on common work, like newspapers, and for old types or electros.

India Tint. Applied to paper; light buff color.

Indian Art. The several styles of Indian or East Indian art, oriental in character. American Indian art was manifested in geometric ornament, raw colors, and crude representations of animate forms.

Inferior Figures or Letters. Small figures or letters cast on the lower part of a type, below the line of the usual face, thus; $\overset{1}{a} \overset{2}{b} \overset{3}{c}$ or $\overset{1}{a} \overset{2}{b} \overset{3}{c}$; used in chemical and scientific formulas. Superiors are above the line, $\overset{1}{a} \overset{2}{b} \overset{3}{c}$.

Initial. The first letter, as of a name, etc. In printing, the word is usually applied to a large letter, plain or ornamental, which is inserted at the beginning of a paragraph. In this use it may be a two-line initial, three-line, etc., according to the number of lines of text that it covers. Before the invention of printing, and since, the initial letter has been considered the feature of a page that could be properly used for decorative purposes. Early manuscripts show many elaborate, beautifully colored initials. These were done by hand scribes and illuminators and early printers often left blank spaces in their printed pages for these letters to be drawn later. In some cases a small letter was printed in the middle of a large space as a guide to the artist. These small letters were covered with the larger letter but sometimes they were left untouched and the decoration drawn around them to fill the space. Later initials were cut on wood or cast in metal and printed with the text.

Ink. The colored fluid used in writing, printing, stamping, etc. Common black ink is a chemical dye generally of nutgalls, copperas, and gum arabic. The coloring matter is gallotannate of iron; logwood is used to deepen and improve the color, and many other ingredients are sometimes used. Printing ink is a mixture of boiled oil and black and colored pigments. Unlike writing ink, which is fluid, printing ink is of the consistency of a thick paint. Linseed and nut oils are used for the finer printing inks, while rosin is used for the cheaper grades. See *Copying Ink*, *Invisible Ink*, *Printing Ink*, *Ruling Ink*.

Ink Balls. Employed before the invention of rollers, about eighty-five years ago, to distribute the ink on the type form. They consisted of round cushions stuffed with wool or similar material, each with a handle, and were used in pairs.

Ink Block. A block or stand upon which the ink was mixed or ground with a muller and brayed out before applying to the balls or rollers.

Ink Brayer. See *Brayer*.

Ink Fountain. The receptacle in which ink is placed on a press, and from which distributing rollers take the ink automatically and spread it over the printing form. The front of the fountain consists of a polished steel roller against which the ink lies and by the turning of which the ink is worked out and taken up by another roller of softer

composition. The supply of ink is regulated by thumb screws pressing behind a knife or straight-edge against the fountain roller. See *Fountain*, and *Single Revolution Press*.

Ink Knife. For handling printing ink, as in taking it from a can or barrel; it has a handle and usually a blade with a square or round end. An *ink slice* is an iron implement for lifting or scraping up ink.

Ink Slab or Ink Stones. Slabs of marble or slate used to distribute the ink upon and thus get an even film on the roller prior to applying it to the form.

Ink Slinger. A slang term for a professional writer, especially one who writes recklessly or verbosely.

Ink Up. To lay on the rollers and distribute sufficient ink for any purpose.

In Hubs. A book is said to be "in hubs" when the hubs have been glued to the spring-back on blank-books; and the book is ready for the leather or other covering material.

Ingrain. A fancy name for mottled papers.

Inlay. A panel of cloth, paper, or leather set into a book cover flush with the surface.

Inlaying. Pasting cloth, paper, or other material flush with the surface of covering material.

Inner Form. When two forms are required to print a sheet, one will have the pages for the inside, and the other those for the outside; on an eight-page sheet, in two forms, the inner form will have pages 2, 3, 6, 7.

In Round. A book is "in round" when rounded, and ready for strapping on blank-books; ready for boards on half-bound books; ready for backing on laced-in and case books.

Inset. A sheet or folded section placed within another.

Inscription Style. Style in imitation of inscriptions on monuments; generally set all in capitals.

Insert. (a) A separate sheet, usually of heavier or different quality of stock and specially printed, bound into a magazine, pamphlet, etc. An illustration inserted in a book is termed a *plate* by bibliographers. (b) In copy-marking, the word is used as a noun for a guide-line when part of a story which arrives separately from the main story is to be inserted in it, as "insert, story to come," "insert, lead to come." The type on galleys is similarly marked with guide-lines.

Inserting. In bookbinding, the act of placing one signature in another, or plates or maps in signatures. The matter so inserted is termed an "inset."

In Straps. A book is "in straps" when the leather has been glued or pasted on the back of spring-back books between the tapes or bands extending on hinges.

Inside Quires. The good quires of a ream of folded paper; the outside quires of a package are likely to show more or less injury from handling, rope marks, etc.

Intaglio. Engraving incised or cut into the surface of wood or metal, in distinction from engraving in relief. The lines to be printed are filled with ink and the paper pressed in to take up the ink. See *Copperplate Engraving*, *Steel Engraving*, *Die Stamping*.

Intaglio Printing. The process of printing from intagliotype plates, or from incised engravings on steel or copper plates; also called *Die Stamping*.

Intagliotype. A process of producing a design in intaglio on a metallic plate, resembling somewhat the graphotype process. The plate is first covered with oxide rendered very smooth by hydraulic pressure. Upon this surface the design is traced with an oily ink. The coating is then washed with a solution of zinc chloride, the effect of which upon the parts not protected by the ink is to harden them, leaving the parts under the ink in a friable condition. When these friable parts are removed by brushes or other instruments, the design is left in intaglio. From the plate so prepared stereotype or electrotype plates are obtained for use in printing. Other solutions are sometimes substituted for the zinc chloride. The intagliotype process is not used to any great extent today.

Integral Cover. A cover of the same paper as the inside of a booklet. Also called self-covered or self-contained.

Interlays. Underlays and Interlays are sometimes interchangeably used, but there is a fine distinction. Interlays are sheets of paper placed between the cuts and the bases upon which they lie when they are being printed. See *Overlays* and *Underlays*.

Interlinear. Lines of type, as of explanation or translation, placed between the main or text lines of a work.

Interlines. In paper-ruling, faint lines ruled between horizontal lines, starting and lifting on the sheet as desired.

Interrogation Mark (?). Used at the end of a direct question. When this mark is cast on a thin body, a thin space should be used to separate it from the preceding word.

Interspacing. The placing of a space between each letter of a word; also called letter-spacing.

Intertype. The Intertype is a slug-casting composing machine, built upon the basic principles of the Mergenthaler Linotype, the patents on which expired many years ago. Embodied in the Intertype

are many patented improvements of simplified design, it being claimed, for instance, that in a three-magazine Model "C" Intertype there are more than 1,200 fewer parts than in any three-magazine machine of other manufacture. The Intertype is built upon a standardized plan by which a single-magazine Model "A" may be readily converted into a two-magazine Model "B," or a three-magazine Model "C," by the removal of the Model "A" magazine and cradle and replacing with either a two-magazine Model "B" cradle, or a three-magazine Model "C" cradle, all of which can be done by two men in about fifteen minutes. Any standardized Intertype may be so converted and each one has a range of from 5- to 36-point in body, and 5- to 42-point in type face, and from 4 to 42 picas in measure. The side-magazine unit may be applied at the factory or on the outside to any Model "A," "B," or "C" Intertype. It is made up of a side magazine which will carry up to 12 matrices in its channels, has 34 characters on its keyboard, and its keyboard is placed conveniently alongside and on the same level with the main keyboard of the machine. Among the more important features possessed by the Intertype may be mentioned the two-part matrix escapement mechanism, the screw-bearing knifeblock, the solid-blade universal ejector mechanism, the pawless and simple spaceband box, the enlarged metal pot with auxiliary pilot burner, and the absolute interchangeability of all magazines in any position on any machine as well as interchangeability of molds and mold caps.

Introduction. A preliminary paragraph, page, or chapter in a book, etc., usually of an explanatory nature. See *Preface*.

Inverted Commas (""). Used at the beginning of a quotation. See *Quotation Marks*.

In Type. A guide-line used in copy-marking when part of a story is taken from a proof, or from a clipping of matter printed in an earlier edition of the paper, for which the type or plates are available for further use. It is pasted on the copy paper, and the margin is marked "in type," and also with the galley slug from which the proof was taken, and with the number of the page and column of the earlier edition of the paper in which the matter was printed.

Iris Diaphragm. A variable stop for use on photographic cameras. It consists of a number of curved leaves cut out of thin metal overlapping each other and each pivoted to the inner circumference of the barrel of the lens. The leaves all work together and by moving a lever they will slide back to the wall of the barrel, like the leaves of a fan, and so give the lens its widest opening. By moving the lever the other way, the leaves will close, and the opening gradually decrease in size down to a very small aperture. See *Stops*.

Iron Blues. The iron blues used in the manufacture of printing inks may be classified as follows: *Bronze blue*, having a strong bronzy appearance, with a green undertone. *Milori blue*, a very slight bronzy appearance, with a strong green undertone. *Chinese blue*, a deep blue,

with a strong bronzy appearance and an undertone somewhat like the bronze blue, but more inclining to a red. *Prussian blue*; practically no bronzy appearance, with a purple undertone. See *Ferrocyanides*, and *Printing Inks*.

Ironing. The making of a smooth panel or square by the heavy impression of a heated block. Similar to hot-pressing.

Italic. The first italic types were made by Aldus Manutius, the famous Italian printer of the sixteenth century, who printed many books with them entirely. Originally only the lower-case letters were italic, the capitals being upright. Although italic was first used to print the whole text of books, it has now only occasional uses, such as for words requiring emphasis, for circulars, bits of poetry, subheadings, etc., and sometimes for prefaces and introductory paragraphs. Its use in roman text for names of books, plays, vessels, newspapers, is not so common as it was twenty-five years ago. On account of the numerous kerned letters, which break off easily and make its use troublesome and expensive, italic is not popular for ordinary work and the modern practice is to employ it sparingly. Nearly all ordinary roman fonts, as well as many special styles of jobbing and display faces, now have their companion italics, which are of similar weight of face and on the same "line" as the roman. A single line drawn under a word or sentence in written copy is a direction to the compositor to use italic.

Italicize. To set words or sentences in italic; to emphasize.

Italic Case. A plan of type case so arranged as to provide for a complete alphabet of capitals and lower-case letters, with figures points, spaces, etc. The arrangement is the same as the regular lower case condensed into two-thirds of the size sideways, with the capitals in the other third-section as in ordinary capital case. It is convenient to hold small fonts complete in a single case, and is made in a number of sizes.

Italic Quads. In the composing room the sending of the young apprentice for italic quads is supposed to be a joke. The American Type Founders Company, however, did make a font of Gothic italic in which every letter sloped, and which required italic quads. The italic matrices (letters and spaces) on the Ludlow Typograph also slope in this manner.

Its Own Stock. That is, the stock upon which the work is to be finally printed, as distinguished from sheets used for proofs or trial impressions.

Ives Process. The process of making three-color printing plates and the method of using them, invented by Dr. Frederick E. Ives, of Philadelphia. Nearly all three-color processes are adaptations of this invention.

Ives Colorimeter. An instrument for testing color, invented by Dr. Frederick E. Ives.

J. This letter, as a distinct character of the alphabet, is comparatively modern (since about 1630), it being derived from the I. Its late introduction explains its position out of the regular alphabetic order in the printer's capital case. J and I (with their lower-case forms j and i), were originally identical and words beginning with these letters were classed together in dictionaries as late as 1800. The use of j is still observed in medical prescriptions at the end of a series of numerals, like vj (six), viij (eight). The pronunciation of j in English may be represented by *dz*h, in French by *zh*, in German by *y*, and Spanish by *h*.

Jacket. (a) In printing, the outside signature or pages of a pamphlet or catalog, as distinguished from *inset* pages. (b) The detachable outer cover of a bound book, sometimes made of heavy canvas; also the paper wrapper, printed or unprinted, folded around a new book to protect the binding, sometimes called a dust cover. (c) On the paper-making machine, a felt cover for the couch roll, used to remove an excessive amount of water from the paper web.

Japanese Vellum. A sheet of rather wild or uneven formation with a feel and appearance quite like an animal parchment. While the real Japanese vellum is made only of Japanese fiber, chiefly mitsumati fibers, the inner bark of a mulberry tree, close imitations at a much lower price are available in America.

Jeffing. To play at quadrats; that is, to throw quads like dice. Em quads are used, the nick side representing one and the other sides blanks. Jeffing is a very old custom, but it has now gone almost entirely out of practice.

Jenson. The name given to a well-known style of type face. The modern type was made by William Morris, who modelled it after the roman letters of Nicholas Jenson, a Venetian printer of the fifteenth century. Morris called his the "Golden" type, but it was introduced to American printers by the Dickenson Foundry branch of the American Type Founders Company as *Jenson Oldstyle*. Other varieties of the face have since been made—Jenson Bold, Jenson Italic, Jenson Condensed, etc., together with a series of ornaments and decorative initials.

Jena Glass. A special optical glass made at Jena, Germany. It consists chiefly of barium, boron, and phosphorus. This glass is used to a great extent for making lenses for spectacles, cameras, etc. A photographic lens made from Jena glass, properly ground and corrected, is called *anastigmat lens*.

Jet. The projection at the bottom of a type when it is first cast, being the metal which cools in the aperture of the mold. It is broken off and a groove made which forms the foot of the type.

Job. A definite piece of work; anything that is undertaken, or assumed to be done, whether of more or less importance.

Jobber. (a) A rotary or platen press for small work. (b) A job compositor. (c) A middleman or merchant who buys goods from the manufacturer and sells them to the retailer; a paper merchant.

Job Case. A type case with boxes for holding a complete small font (a job font) of type; in distinction from news or book cases, which are in pairs.

Job Compositor. One who does all or many varieties of work, as distinct from a book or newspaper hand.

Job Font. A small assortment of type of one style and size; commonly used for display and miscellaneous work. It contains capitals, lower-case letters, figures, points, etc., but no small capitals, and most job fonts do not now include the diphthongs Æ, Œ, æ, œ. A job font contains a certain number of each character; a weight font contains a certain weight of each. Job fonts are now put up by typefounders in two sections; one of capitals, figures, and points, the other of lower-case letters, with a small portion of points. See *Font* and *Weight Font*.

Job Galley. Made in many sizes, but shorter and wider than those used in newspaper and book work.

Job Printer. A printer doing mostly jobwork.

Job Press. A small press, commonly of the platen type, upon which small jobs are done.

Job Ticket. An order or ticket accompanying a job or piece of work, usually bearing full instructions, records of operations, costs of materials, etc.; sometimes called a *jacket*.

Job Type. That used for miscellaneous work in small jobs, etc., usually in small quantities, in distinction from newspaper and book type.

Jog. To push or shake gently; that is, to push together sheets of paper, etc., into a compact pile. To jog up sheets that have been spread out after printing, that the ink may dry quickly, requires some skill and practice, in order to avoid breaking and crumpling the edges. A great deal of spoilage and untidy work may be prevented by allowing none but careful employees to do this part of the work.

Jogger. An arrangement attached to the delivery board of a press, to keep the sheets in order as they are laid down by the fly, tape, or grippers. It consists of small movable uprights on two or three sides of the area where the sheet is delivered. These uprights move back and forth automatically as each sheet is laid down and thus keep the pile straight.

Joints. The part of the book cover where it joins the back on the inside; the hinge.

Jordan Engine. An engine used in the paper industry for refining the stuff. The mechanical action of this machine is very much like that of a coffee mill, except that it is fully encased. The motor-driven

Jordan is conical in shape and its inside is lined with knives. There is also a core having the outside covered with knives, which revolves on a shaft inside. This cone-shaped core may be adjusted to bring its knives into close relations with the knives on the inside of the shell, thus controlling the grinding of the pulp as it passes through. The outlet from the beater (which is another engine having a large cylinder with knives across its surface, revolving in a vat where the washed rags and wood pulp are beaten into fine particles), flows into a tank to feed the Jordan engine, which in turn discharges into what is called the machine chest, that is, the reservoir from which the liquid paper-making stuff is pumped into the paper-making machine.

Journeyman. One who has finished his apprenticeship. Several hundred years ago this title was given to a workman who journeyed from place to place in order to acquire a full knowledge of his trade.

Journalism. From journal (a newspaper or periodical), the occupation or profession of writing, editing, and publishing current news and stories.

Journalist. One who conducts, manages, edits, or writes for a journal or periodical.

Jump His Case. To quit or neglect his work; to leave his case without notifying the foreman, or for a sub. to leave without notifying the regular compositor. At the present time, when composition is largely done by machine, the term "Jumped his position," or "Jumped his machine" are in common use.

Jute. Originally an Asiatic herb, but now grown in other countries. In America, the Indian Mallow, the fiber of which is used by manufacturers of coarse sacking and bags, and gunny. Raw material used by paper-makers is the old gunny and sacking.

Jute Board. A fibrous board, sometimes grained or marbled by printing, used as a cover on cut-flush books. Raw material obtained from old gunny and sacking.

Jute Manila. A manila wrapping paper produced from jute and manila clippings.

Justify. To make lines of type of exact length with their mates, so that they will lock up solidly. This may be done by spacing between or within words, or at the ends of lines. To space a line is to put proper spaces between words or letters. A line may be well justified but badly spaced and vice versa.

Justifiers. Very thin spaces, like copper-thin, etc., are sometimes called justifiers. In England, large quads or quotations are termed justifiers.

Kalogram. A design which has the appearance of a monogram, but includes all the letters of a name. Usually hand-drawn and then reproduced for use on stationery; sometimes for book-plates.

Kaolin. A substance found naturally, produced by the weathering of felspathic rocks, and consisting of silicate of alumina. Used as a loading for paper. The term is now applied to any kind of porcelain clay which does not dissolve in the process of firing.

Keep Down. A direction to use capitals sparingly; to begin with small letters those words which might in other places be capitalized. In newspaper work the custom is to keep down many words that would be kept up in pamphlet and jobwork.

Keep Standing. After type or forms have been used to print the number of impressions required, an order to "Keep standing" may be given, if there is a probability that the forms may be needed again.

Keep Up. To use capitals freely; to capitalize words which might at other times begin with small letters.

Keep-Up Style. To follow strictly the rules of the office in matters of capitalizing, punctuation, division of words, spelling, abbreviations, style of headings, etc.

Kelly Automatic Presses. Made in several styles of bed-and-cylinder types. *Style B* is a three-roller, automatic job press, printing from type and plate forms at a maximum speed, on good foundation, of 3,600 impressions an hour. Specifications of this press are as follows: bed measurement, $20\frac{1}{16} \times 22\frac{3}{8}$ inches; size of sheet, $14\frac{1}{2} \times 22$; largest sheet fed, 17×22 ; smallest sheet fed, 7×10 inches; and a pyramid three-form roller inking system. The automatic feeder takes a 17×22 -inch sheet; there is an automatic trip for double-rolling. One roller (sufficient for light forms), covers $16\frac{1}{4}$ inches from the gripper edge to the sheet. The second and third form rollers are adjustable as form or distributing rollers. These adjustments, in combination with the automatic double-rolling feature, makes possible the printing of oversize forms, but at a reduced speed. Forms may be locked on the bed of the press, or plates may be mounted on patent bases to the full 22 inches. The *Style B Kelly Special* automatically feeds, prints, and delivers paper and card stock, handling folio, onionskin, book, cover, glazed, antique, and all regular papers. The pile table holds twelve inches of stock and raises automatically as the stock is fed. Filtered air blast and air suction are used to separate and pick up the sheets. A caliper prevents more than one sheet from feeding and the press is stopped automatically if two sheets come forward, if a sheet does not reach the detectors in register, if a sheet is torn or crumpled on delivery, or when the last sheet is taken from the pile table. A feature of this press is the automatic double-rolling device for solid plates and tint backgrounds. Hand-feeding of difficult stock is easily done, the change from automatic and vice versa requiring very little time. *Kelly Automatic Press No. 2* has most of the *Style B* features, but is slightly larger, having a bed measurement of $28\frac{1}{2} \times 35\frac{1}{2}$ inches. Size of sheet, 22×34 inches; smallest sheet fed, 8×12 ; largest form locked in poster chase covered by two form rollers, $21 \times 32\frac{3}{4}$ inches. Oversize sheets up to 24×35 inches may be fed by an adjustment of the rollers.

The *Kelly Automatic Jobber* automatically feeds, prints, and delivers sheets from 13 x 20 inches down to 5 x 8 inches. Maximum speed, 4,500 impressions an hour; form covered by two rollers, 12½ x 19 inches; inside chase measurement, 14 x 19¼ inches. Forms are automatically double-rolled if their solidity makes this necessary. The pile table holds twelve inches of stock, extension delivery truck thirty-seven inches. The automatic feeder is run back on rails to allow space for changing packing, make-ready, roller or fountain wash-up.

Kennerley. The name of a beautiful roman old-style type face designed by Frederic W. Goudy. The Kennerley face was inspired by the type imported by Bishop Fell for use at the Clarendon Press (Oxford). Kennerley was originally cut for Mitchell Kennerley, the publisher, and was restricted to private use, but is now available for Monotype machines in different sizes of roman and italic.

Keratol. A waterproof cloth made in imitation of leather; sometimes used for book covers. Similar to *leatherette*, *buffinette*, etc.

Kerned Letters. Those which have a part of the face projecting over the body of the type, like the italic *f*, *y*, etc. In early roman fonts, now known as the old-style, the top of the letter *f* projected over the body, so that when it was used before an *I* or *i* or *l*, as well as when two were used together, a thin space was needed to prevent the kern from breaking off. To avoid this, the *f* was cast double, also with *l* and *i*, on the same type, thus giving the familiar ligatures, *fi*, *fl*, *ff*, *ffi*, *ffl*, instead of the *fi*, *fl*, *ffi*, *ffl*, as they would appear in single types. Kerned letters are troublesome to the typefounder, on account of the extra care and expense in making, and they are a source of annoyance to the printer because of the breaking of the kerns. Modern typefounders endeavor to avoid kerned letters as much as possible, but they cannot be entirely dispensed with, especially in italic fonts, whose long sloping letters would leave wide gaps unless the types were made to overhang each other more or less.

Kettle Stitch. In bookbinding, the stitch is made at the head and tail of sewn books; a chain stitch. It is made by inserting the needle between the sections, making a loop, inserting the needle and fastening. The different methods are described under the respective sewing heads.

Key (for mechanical quoins). A T-shaped piece of steel with a pin at one of its points which fits into and operates the metal quoins used to lock up forms. A combination key is in the form of a Y and has two of its points fitted for the two sizes of the Hempel quoins and the other point for the Wickersham quoin. A pressman's key is a right-angled lever of this shape , with the short arm fitted for the quoins. It is convenient for unlocking and locking quoins that may be in the form close under the cylinder of the press, where the regular key cannot be used. See *Hempel Quoin*.

Keyboard. An assemblage of keys, systematically arranged, each of which controls some mechanism, so arranged that by touching a key, a matrix may be released (as in the modern type-casting machines), or a letter symbol punched into a roll of paper (as on the Monotype keyboard). See *Linotype*.

Key-plate. Any printing plate that is used as a guide to get the other plates into register. In the three-color process the blue plate is usually used; in the four-color process the black plate is used. See *Three-Color Printing*.

Kid Finish. A smooth finish resembling kid leather.

Kidder Press. A printing machine invented by Wellington P. Kidder, of Boston, and placed on the market about 1876. The first styles of the machine were somewhat similar to the Gordon Press, with attachments for feeding the paper from a roll and cutting it into sheets after printing, and for numbering, perforating, etc. Because of its self-feeding apparatus it could be run at a high speed and was profitable for work in long runs. Later, other styles of the machine were made, and since the retirement of Mr. Kidder the firm has built presses other than those invented by him, until now there are over thirty different styles of Kidder presses, flat-beds, and semi-rotaries of various sizes. Among the best machines the company makes is the roll-feed all-size adjustable rotary press, which can print at a speed of 6,000 impressions an hour to perfect register, in from one to three colors, and deliver 72 different lengths of sheets. It will print any kind of stock—manila, craft, parchment, grease-proof, onionskin, or glassine.

Kill. When the word is marked on copy or on proofs, it means that the stuff should be thrown away, and is not to be used. A colored pencil is used for marking matter "killed."

Kinemacolor. A process of making colored moving pictures used by Smith and Urban in 1908. In this process only two colors—red and green—were used in taking and projecting the pictures. With an ordinary moving-picture camera thirty-two exposures a second are made through a color screen of red and green glass or gelatin, which rotates in front of the shutter. As the color screen rotates, each alternate picture is made through the red screen and the other through the green screen. The pictures on the film, therefore, are alternate color records of the red and the green in the view or the subject. See *Technicolor Process*.

Key-drawing. An outline drawing furnished to a lithographer; or to an engraver as a guide to color separation in making a set of plates for two or more colors, used for any of several kinds of printing.

Knife Switch. The common open switch for opening and closing an electric circuit.

Kraft Paper. A kind of rough paper in which the fibers are long, and which is therefore tough. Frequently used as a wrapping paper. "Kraft" is from the German and means strength.

Knee. The movable angle piece, or slide, which fixes the measure of a composing stick.

Köenig Press. The first practical power printing machine; invented in 1811 by Frederick Köenig, a Saxon, who devoted his attention to constructing a press that would print by means of a cylinder. On November 28, 1814, the London Times announced the fact the number issued that day had been printed by machinery propelled by steam. The first suggestion of a cylinder press is due, nevertheless, to William Nicholson, an Englishman, who in 1790 took out a patent for such a machine, but which was never acted on. Isaiah Thomas says that a Dr. Kingsley, of Connecticut, afterward produced a press varying somewhat from Nicholson's.

Klymax Feeder. An automatic feeder attachment for 8 x 12, 10 x 15, 15 x 18, and 14½ x 22-inch Chandler and Price Presses. It is permanently attached to the press, but turns aside if desired for make-ready, hand feeding, etc. It feeds by suction, and will feed any stock from French folio to 10-ply cardboard, as well as envelopes, bags, blotters, box cartons, etc., having surface of stock gummed, waxed, embossed, coated, or antique. The register is automatic and perfect for any number of colors and is designed to allow removal of make-ready without disturbing register. The stock can be re-fed for a new impression at once. The Klymax automatically trips on a short sheet or from lack of stock, a bell giving notice thereof. It jogs automatically and delivers right side up. The production is 2,500 to 3,500 on 8 x 12, 2,000 to 2,500 on 10 x 15, 1,700 to 2,000 on 12 x 18, 1,200 to 1,700 on 14½ x 22-inch presses. The operation and construction of the machine are simple and strong.

L. In the Roman numerals L signifies 50. The English mark for pound sterling £ is the same letter, the initial of the Latin word *libra*, pound. The commercial sign for pound weight, lb, is from the same word.

Label. A small piece of printed or unprinted paper, cloth, parchment, etc., attached to anything. Nearly all small labels are gummed before or after they are printed. See *Stickers*.

Label-holder. For type cases, drawers, etc.; narrow strips of thin brass tacked on the ends, and having the edges arranged so that a strip of card may be inserted and kept in place.

Labor-saving. The term is applied to rules, leads, metal and wood furniture, etc., that are provided in assorted lengths. The sizes are commonly multiples of pica (12-point) or nonpareil (6-point). Material in graduated sizes saves labor, as well as the necessity of keeping on hand sizes that may be little used, because two or more small pieces may be combined to make a larger piece. Labor-saving material is indispensable in jobwork and is employed to a great extent in printing-rooms of every kind; even in newspaper and book rooms,

where leads, slugs, rules, and such material are needed mostly in a few special sizes, fonts of labor-saving material are convenient and economical for the unusual sizes that are sometimes called for. Dealers in printer's goods now furnish brass rules in various styles, leads, slugs, metal furniture, reglet, wood and steel furniture, etc., in labor-saving fonts, together with cases and racks for their proper storage.

Labor-saving Rule. Brass rules cut in graduated lengths; the usual sizes are multiples of nonpareil (6-point) up to ten picas long, and multiples of pica (12-point) for the longer sizes. The advantage of labor-saving rules is that, having an assortment or font of the shorter sizes they may be combined to make longer rules, thus saving material as well as the labor of cutting new lengths. Labor-saving rules are furnished in fonts, by weight, by the typefoundries and supply houses.

Laced In. When the cover is fastened on a book by means of the bands being passed through holes in the boards, they are laced in.

Laid Down. When the pages of a book or catalog are placed in proper order on the imposing-stone, ready to have furniture fitted around them for locking up, they are laid down. A printed sheet reinforced by a piece of strong paper or thin cloth pasted on its back is, among bookmen, laid down.

Laid Paper. Having lines water-marked in it at equal distance apart, the lines being thin places made by the pressure of the wire screen during manufacture. It is customary to speak of paper being either laid or wove. These are misleading terms, probably originated not with the paper-maker, but with the maker of the wire screen upon which hand-made paper is made. For a wove paper, the screen used is woven like cloth; but for a laid paper, the wires of the screen are laid in parallel columns. The laid paper is of earlier origin than the wove paper; in fact, it was not till the year 1750 that the wove screen was used.

Lake. Applied to colored printing inks, means that the pigment is made by absorbing animal, vegetable, or coal-tar coloring matter from an aqueous solution by means of a metallic base; an aniline dye precipitated on a transparent base. Lake colors are transparent colors, and are of many hues—crimson, green, olive, red, purple, yellow, etc.

Lampblack. Formerly the most important black pigment used in the manufacture of printing inks. It is produced by the burning of oils and fats with an insufficient supply of air for complete combustion. The soot thus formed is allowed to settle in large chambers, and is collected from time to time. Gas black has now largely surpassed lampblack as a pigment in printing ink.

Lanston Monotype. See *Monotype*.

Lapping Sheets. In paper-ruling, sheets fed on top of each other in striking.

Large-paper Edition. A book printed with wider margins than usual. When two styles of a book are called for, one for ordinary circulation, and another on better grade of paper and perhaps in better binding, it is common to increase the margins for the more expensive edition. This makes it necessary to change the furniture in the forms, or even to impose it over again for a different size of paper.

Large Post. A size of paper, $16\frac{1}{2} \times 21$ inches.

Laureate Press. A platen press of the Universal style, with a rigid, upright bed. See *Universal Press*.

Law Binding. A plain style of leather binding used for law books. *Law Calf* is a binding in calf leather that is uncolored, in the natural state, pale brown.

Law Italic. This name was given to a broad-faced italic often used in law blanks and similar work, and is sometimes termed *Caledonian Italic*. The name also now given to an italic of somewhat different style, known as *Law Italic No. 522*.

Law Printing. Law printing is a distinct class of work and is done mostly in offices which have facilities for properly handling it and where compositors and proofreaders have become familiar with its peculiarities. Much of it consists of attorney's briefs and records. The appellate courts of all states, as well as of the United States, require all cases coming before them to be in printed form with pages of specified sizes, and sometimes in specified sizes of type. Massachusetts Supreme Court work requires a page of the size of 8×10 inches; U. S. Circuit Court and Circuit Court of Appeals, size of page $6\frac{3}{4} \times 10\frac{1}{4}$ inches; U. S. Supreme Court and U. S. Patent Office, $5\frac{7}{8} \times 9\frac{1}{8}$ inches, set in small pica (11-point) or larger. Usually only a small number of copies is printed (from twenty to fifty), and the work is done in a rush.

Lawn Finish. A finish imitating linen cambric, applied by pressure to paper.

Lay-boy. The part of a ruling machine which carries, receives, and jogs the sheets after they have been ruled.

Lay of the Case. The plan or scheme of arrangement of the letter and other types in the compositor's case. As the boxes are hardly ever labelled, except in cases that are seldom used, like sort cases, and those for holding accents, signs, etc., it is necessary for one who works at them to memorize the location of each character of the font. "Learning the case" is the first duty of the beginner and he should do this thoroughly. In the main, the lay of the ordinary type case is now pretty nearly the same as it has been for hundreds of years, and in all countries using the Roman and German letters there is also a great similarity. In spite of the numerous changes that have been proposed and though many cases have been made and used with different plans which were obviously improvements on the usual arrangement, printers have adhered so closely to the ancient lay of the case that a present-

day compositor would have little difficulty in setting type out of the case shown by Joseph Moxon in 1683. This applies only to the common book and news type cases, which are in pairs, and not to cases for holding job type. Of these, there are several styles, used according to the requirements of the fonts to go into them.

Laying Type. Putting a new font of type in a case; sometimes termed laying cases, laying letter.

Layout. (*a*) A laying out, planning; a design of entire book; a format, showing the form, size, and general style of a book, including the face of the type, kind of stock, and character of binding. (*b*) Typographic, a typographer's design or arrangement of type faces and sizes, illustrations, and colors for a piece of printing. (*c*) Production, time, and materials as indicated by analysis to be required on any order of printing. (*d*) Plant, an orderly arrangement of machinery and equipment.

Layout Man. Sometimes called a "typotect." The duty of the layout man in the composing room is to prepare a rough diagram of a job that is to be set in type, and indicate the sizes and kinds of type that are to be used.

Layout Paper. Sheets of paper having lines printed or ruled both horizontally and vertically to produce pica squares; cross-ruled sheets usually $8\frac{1}{2} \times 11$ or 17×22 inches in size; used for making layouts.

Lead to Come. In newspaper copy-marking, the mark on an *insert* or on an *add*, to show that the *lead* or introduction is to come later and the early arriving section of the story should not be printed alone. Abbreviated *L. T. C.* The guide-lines on type galleys conform to this mark.

Leads (*pron.* leds, not leeds). Thin strips of soft metal used between lines of type to open them out more or less. They are made in different thicknesses, based on the point system. The most common thickness is the 2-point. They are of softer metal than the type, and are sometimes of brass for use in newspaper offices. Leads have also been made of zinc and tin, as well as vulcanite, but these are rare. See *Brasses*, *High Leads*.

Leaded Matter. Type lines separated with one or more leads, as distinguished from solid matter.

Lead and Slug Case. A special case, having graduated partitions for holding various sizes of leads and slugs. See *Cases*.

Lead Cutter. A small machine with a short, strong knife and a movable gage, for cutting leads in any desired length. The commonest form of lead cutter is the combination lead and rule cutter. This is made in a variety of styles by different makers. In these there is a double bed-plate, one part (in front), for leads and the other (in back), for cutting brass rules or slugs. The knife on the cutting lever has two edges. That for leads has an edge exactly parallel with the base of the

ting edge, so that it chops off the lead with a uniform pressure across the width of the strip. The knife for the brass rules and lead slugs has the upper edge ground at a slight angle and the cutting is done like that of a shear. The back of the knife lever, being nearer the post, gives the power necessary to shear off the tougher or thicker metal. Another feature of modern cutters of this kind is the gage by which lengths of standard 6-point and 12-point multiples may be cut. The face of the bed is marked off in numbered units, and there is a sliding gage which can be moved to the desired position and held in place automatically by spring-pressed teeth fitted into notches in the gage rod. On many machines there is also an extension gage outside of the knife in addition to the gage on the bed-plate. This front gage is useful for cutting quantities of short pieces—2, 3, 4 ems long. By setting the gage and pushing the strip of lead or brass up to the gage, it is then cut off and drops down, allowing the rule to be pushed along for the next cut.

Lead Rack. A receptacle for holding various sizes of leads.

Leaders. (a) Periods or dots placed at intervals in open lines to guide the eye across to figures or words at the ends, as in indexes, tables of contents, price lists, etc. Leaders are cast by typefounders in nearly all sizes from 5-point to 18-point, in several styles, such as fine-dot....., two dots to an em., one dot to an em Cast leaders are usually on en, em, two-em, and three-em bodies. Brass leaders, not so easily worn or broken off, are now also furnished; they are serviceable in commercial, legal, and other forms where blank spaces are to be filled in by writing after the work is printed (the.....day of.....192....). These are made on 6-point, 8-point, 10-point, and 12-point bodies. For occasional use, a few lines of leaders may be readily composed with periods and quads or spaces. (b) The first or chief editorial article of a newspaper is known as the *leader*.

Leader Boxes. Small special boxes for leaders; they may be laid upon the ordinary type case or attached to it temporarily. The usual style has separate compartments for en, em, two-em, and three-em leaders.

Lead-mold. An apparatus formerly used in print-shops for casting leads and slugs. It consisted of a small furnace, a melting-pot, a set of ladels, a small marble slab, a lead-mold with shifting screws, a lead-scraper, straight-edge, and trying-tool or gage. Today leads and slugs can be cast on any of the various type-casting machines, so that there is very little use for the old-fashioned lead-mold.

Lead-molding. A process used for making electrotpe molds, in distinction from the wax-mold method. The pattern to be duplicated is forced into a sheet of pure lead by means of a powerful pressure. The making of molds in lead can be done with greater exactness than in wax, because the lead is not affected by any sudden changes in temperature, and because the density of the metal is known; also the

amount of pressure which a square inch will stand can be determined beforehand. Lead-molding is confined almost wholly to copper originals. Lead can not be used for molding patterns which are made of a substance that is softer than lead, such as type forms, stereotypes, etc. For these the wax-mold process is superior to the lead mold. See *Electrotype*.

Leaf. A leaf of a book has two pages—the odd and even; this distinction between a leaf and a page should be kept in mind to avoid misunderstanding in speaking of the make-up of a book.

Leaflet. A small, thin pamphlet or folder; more strictly, a sheet folded into leaves but not stitched.

Lean. Said of type matter that cannot be set quickly when done by piece work, like solid matter without quads or open spaces. See *Fat*.

Lean Type. A type with narrow or condensed face. A lean or condensed face is usually reckoned as one in which the alphabet, a to z inclusive, in lower-case, measures less than $12\frac{1}{2}$ ems of its own body. A medium width is from 13 to 15 ems, and a fat type over 15 ems.

Leatherette and Leatheroid. An imitation of leather made of embossed paper or cloth, used for book covers.

Ledger Bristol. A strong, hard bristol, made of the best quality rags or wood pulp, on a Fourdrinier machine. It has a heavy writing and erasing surface and is used for making special index cards. Also called index bristol.

Ledger Paper. Heavy, strong writing paper of best quality, so named because it is used in ledgers and account books.

Legal Cap. A size of writing paper $8\frac{1}{2} \times 14$ or 13×16 inches, flat or folded. Law cap is 12×15 , or $12\frac{1}{2} \times 16$ inches, folded the narrow way; this size, usually folded the long way, is foolscap. See *Foolscap*.

Legal Work. See *Law Printing*.

Legend. A brief description printed below an illustration. Sometimes erroneously called a cut-line.

Lens. Lenses are usually made of flint glass or of crown glass. Flint glass is produced by melting sand, lead, and soda together, while crown glass is made by melting sand, lime, and soda together. Lenses may be divided into two general classes: convex lenses, or positive convergent lenses, and concave, or negative divergent lenses. Convex lenses curve out on one or both sides, and concave lenses curve in on one or both sides. In the first class there are three kinds, the biconvex, or double convex, the plano-convex, and the converging, or positive meniscus. In the second class there are also three kinds, the biconcave, or double concave, the plano-concave, and the diverging, or negative meniscus. All these lenses must be corrected for their optical defects before they can be used in photography. Lenses used in the photo-

engraving industry, are called "process lenses," and are formed of many different glasses, ground in different shapes and sizes and mounted with great accuracy in a tube or cylinder called a "lens barrel." They usually consist of a pair of convex or converging components. Some of the well-known makes in use today are: the Goerz, Carl Zeiss, the Cooke, and the Bausch & Lomb lenses. Nearly all manufacturers produce portrait lenses, wide-angle lenses, soft-focus lenses, telephoto lenses, and copying and enlarging lenses, the latter style being used in photo-engraving chiefly. Different scientific names are applied to lenses. An *achromatic* lens is one which has been corrected for chromatic aberration by a suitable combination of glass of different refractive and dispersive powers, as the cementing together of a plano-convex and a double-convex lens. Similarly, an *anastigmat* lens is one which is made of Jena glass (which consists of barium, boron, and phosphate), which has been corrected for astigmatism, chromatic aberration, and field curvature. An *aplanat* lens is one corrected for spherical aberration, which is done by grinding the lens so that both of its surfaces have different curvatures, depending upon the index of refraction of the glass, one surface being more convex than the other. A *rectilinear*, or symmetrical lens, is one which has been corrected for distortion by combining two achromatic components having a stop between them, thus causing the distortion of each to react on the other which neutralizes the effect. It might be explained that *aberration* in optics is the convergence of different foci, by a lens or mirror, of rays of light emanating from one and the same point, or the deviation of such rays from a single focus.

Let-in Note. More commonly termed cut-in note. See *Cut-in Note*.

Letter. Sometimes this word is used to mean a type.

Letter Boards. Movable shelves, under imposing tables, in racks, or elsewhere, upon which standing type forms are kept. See *Imposing-Stone*.

Letter Foundry. A type foundry.

Letterhead. (a) A printed heading on writing paper. (b) The sheet of paper used for writing commercial letters. The most common sizes are $8\frac{1}{2} \times 11$, $5\frac{1}{2} \times 8\frac{1}{2}$, $6 \times 9\frac{1}{2}$, and the hypotenuse size, $7\frac{1}{2} \times 10\frac{3}{4}$. See *Commercial*.

Letterpress Printing. Printing from type, as distinguished from lithographic work and that done from copperplate, steelplate, and other engravings.

Letter Rack. A frame for holding cases or shelves for metal or wood type.

Lettering. The act of making or impressing letters; the letters so made.

Letter-spacing. See *Interspacing*.

Levant Morocco. Morocco leather made from the skins of the Levant goat, which has a larger grain than Turkish morocco. See *Morocco*.

Lever Press. Any press in which the impression is given by the moving of a lever, but the term is mostly applied to the type of presses used for proving and for hat-tip printing in which the lever is pulled down.

Liberty Press. A platen jobbing machine in which the two parts, bed and platen, were hinged together at the bottom by an extension of the frames, and operated equally in making the impression. The inking rollers were placed between uprights and moved up and down but not sidewise as the form and ink disk passed under them. The press was invented by Frederick O. Degener, of New York, and was first called the Degener press. Fifty years ago, this and the press invented by George P. Gordon, were the styles of jobbing machines in general use in this country. The Liberty press is now rarely seen.

Library Buckram. A special heavy-weave cotton cloth suitable for letterpress books. It is dyed and covered with a light coat of color.

Lift. (*a*) When a form locks up so that it may be taken from the imposing-stone without types dropping out, it is said to lift. (*b*) A lift of paper is the quantity put out on the feed-board of a press at one time. (*c*) In England, an elevator for carrying forms, paper, etc., from one floor to another is a "lift."

Lifted Matter. Type matter already set which is taken out of one job for use in another.

Ligature. Two letters tied together and cast on the same body, like *fi*, *ff*, etc.

Light-face. A term used to describe a style of type having a face very much lighter than usual. Light-face Gothic.

Lignin. In paper pulp-making, a name given to the impurities found mixed or combined with cellulose in wood in amounts approximately equal to the cellulose. All save a trace, which is, however, injurious, is removed in the preparatory cooking of the chemical wood pulp.

Limp. Leather or cloth bindings for books which are flexible and bend easily, in distinction from boards or stiff covers.

Line Cut. See *Line Engraving*.

Line Drawing. An outline drawing or sketch, in ink or crayon, from which a line engraving can be made.

Line Engraving. That style of engraving in which the effect is produced by lines or combinations of lines, in distinction from half-tone and similar work in which the effects are obtained by masses of dots of larger or smaller dimensions. Copper and steel engravings

made by direct incision of the graver or the dry-point, wood engravings, as well as zinc etchings made from pen drawings, are classed as line engravings.

Line Etching. See *Etching*.

Line Formers. Curved pieces of brass, of the height of quads and leads, to hold curved lines of type. They were made in sets, with clasps or catches to hold the ends of the lines in place. The practice of setting curved lines of type is now obsolete, and the use of line formers is rare nowadays.

Line-gauge. See *Gage*.

Linen. Applied to paper originally made from linen rags, but term is now applied to various papers that simulate the original appearance.

Linen Cloths. Thready appearing fabrics which have received a light coat of color, used for bookbinding.

Linen-faced. Paper or cardboard having one or both sides faced with linen, to strengthen it; for book covers, children's books, etc.

Linen Finish. A finish impressed on paper to resemble linen; usually effected by placing paper between sheets of linen and zinc plates and subjecting it to pressure.

Lining. (a) The exact alignment horizontally of the bottom of the letters of a font. In addition to the obvious requirement of making all the letters of a single font line with each other perfectly, American typefoundries have adopted the practice of casting type faces on uniform lining systems, variously known as American line (American Type Founders Co.), Standard line (Inland Type Foundry), Uniform Line (Barnhart Brothers & Spindler), etc. The old-time practice was to cast the characters of a font so that they would line up only with their mates of the same size and style without reference to any other style of type. When the compositor had occasion to use in one line two or more kinds of type of the same body, their faces were rarely on an even line, *but* were *irregular* like *these* words. This made it necessary to use thin leads, cards, or pieces of paper above and below different parts of the type line in order to get the faces in line—an operation more or less troublesome and time-consuming. By the new lining system all the faces made on any given size of body are cast to align with each other, as illustrated in this line, and they need no more adjustment than if they were all of the same font. The shoulder or blank space at the bottom of the letter, increases gradually with the increase in the size of the type, so that a word of small type placed beside a larger size of the type, must have some spacing material below as well as above it, to keep in its right place. The lining system provides also that this difference in alignment of different sizes of type is graduated by points, and when large and small sizes are used in the same line the justification may be made by the use of point leads, making pieces

of cards and paper unnecessary, and securing greater accuracy and solidity. All faces cast on the same size are not, however, cast on the same line, but are classified usually into three groups. One group embraces the great majority of faces, those having capitals and lower-case with normal descending letters, g j p y. Another group embraces fonts which consist of capitals only, or of letters having very short descenders, which may be made to enter on the body. A third group includes those faces having very long descenders, and which must be high on the body like script types. A common class of lining types in jobbing work are the "Combination series," or those having two or more sizes of face (usually fonts of capitals only), cast on one size of the body. Each face is made to line with the others on the same body, and all the faces may be readily used in combination, with a single size of spaces and quads. In order to distinguish one size of face from another readily, the nicks on the type of each are varied, a single nick for one face, two nicks for another, etc. (b) The reinforcement of the book with super or crash, and paper which is applied to the glued back of the book before it is put into the covers, is called lining.

Lining Figures. That is, figures, usually of modern cut, that are cast so that they line together at the bottom, like 1234567890, in distinction from the old-style (or low) figures: 123456789o. Old-style figures are now cast "on the line" in some fonts.

Lining Papers. The end papers, plain, colored, or marbled, inside the covers of a bound book; often called the end papers.

Linograph. One of the newer practical composing and slug-casting machines, similar to the Linotype and Intertype. One of the features claimed for the Linograph is that it produces slugs with low quads, which will prevent smutting while they are being printed from.

Linoleum Block. Relief surfaces or blocks cut from linoleum. In recent years engraving on linoleum has become popular, and such engraving has been used to some extent for poster and other flat-color printing. The process is similar to that of wood-block cutting, and is done entirely by hand. Wood-carver's tools, gages, and knives with long bevelled edges are employed. By using a good quality of commercial linoleum of various textures (about $\frac{1}{2}$ inch in thickness), different effects—smooth, stipple, grained, etc., may be produced in printing. Linoleum blocks are very durable and can be electrotyped in order to produce duplicates.

Lithotone. A one-way halftone in which, by special photography, the printing surface is made up of lines instead of dots, the effect produced being like that of a wood engraving.

Loft-dried. A term applied to any papers dried by being hung up in a drying shed or loft and finished by natural process of evaporation of the moisture.

Linotype. See *Mergenthaler Linotype Machine*.

Linotype Column Rules. These rules are different from those used for ordinary type matter, being beveled so that the foot of the rule is thicker than the upper part, to hold the bottom of the slugs tightly.

Linotype Galley. As linotype slugs need only to be fastened at the foot of the galley, without a side-stick, for proving, the upper side of a linotype galley needs no ledge for holding the side-sticks and quoins; it has instead, a movable clamp for holding the lines at the bottom of the column.

Linotype Planer. For planing down linotype slugs in a form. Used in the same manner as an ordinary planer. It has a corrugated rubber face for removing the burs which the machine often leaves on the face edge of the letters. A brush is sometimes used for this latter purpose.

Linotype Slugs. A line of type, rule, or border in one piece, as is produced by the Mergenthaler Linotype.

Litharge. An oxide of lead used in ink-making. An oxide is a combination of oxygen and some other substance.

Lithol Red. One of the organic pigments used in printing inks.

Lithography. The term is derived from two Greek words—*lithos*, a stone, and *graphein*, to write, and therefore simply means stone-writing, or writing on stone. The process of printing from a flat stone. The design to be printed is drawn on a stone of peculiar quality with a specially prepared ink, which clings to and dries on the surface. The surface is then subjected to the action of a weak acid that hardens the ink and slightly etches and lowers the unprotected parts. The process of printing first requires moistening the surface with water, which is absorbed by the blank parts and repelled by the hard greasy lines of the design. Printing ink is then rolled over the stone and is repelled by the wet parts, but adheres to the ink-drawn design. The stone thus prepared is ready to make an impression on the sheet. It will thus be seen that the theory of lithographic printing is based on the repulsion between grease and water. The production of the design depends upon chemical manipulation of the printing surface. It is the most flexible of all methods of printing. The invention of lithography is due to Alois Senefelder, an actor of Munich, and was the result of an accidental impression on a stone. He employed it in printing music and afterwards, with others, developed the art for commercial purposes. Like other methods of printing, lithographic work was formerly done on hand presses, but since about 1860 power presses have been employed and the progress of the art has made rapid strides. Many new and improved processes and details of manipulation have been invented, both for preparing the design on the stone and for printing from the stone when ready. The preparation of the stone is done in several ways; by drawing on it with a special chalk or crayon; by line-drawing with pencil or pen with lithographic ink; by drawing

through a thin film with diamond or steel points; by drawing or writing on prepared paper for transferring on stone; by transferring impressions taken from copper or steel plates, woodcuts, or type; by photographing on stone; and by wash-drawing on stone. The lithographic hand press has a movable bed, like that of the typographic hand press. The impression is made, not with a platen, as for type form, but with a straight-edge scraper at the press head. The bed moves under this scraper, which extends across the width of the stone, and imparts great pressure on a small area at a time. The first operation, when printing, is to moisten the surface of the stone, so that subsequent inking will leave ink only on the design. The ink roller is then passed over it; when sufficient ink has been applied, the sheet is laid on, the tympan laid down, and the bed moved in under the scraper. The back of the tympan is slightly oiled to allow the scraper to pass over it with as little side resistance as possible. Lithographic rollers are not made of glue and molasses, like those used for typographic work, but consist of wooden or iron cores, wound with felt or flannel and covered with leather. Lithographic power presses are similar to cylinder presses employed for typographic work. A lithographic stone, after being used, may be ground down and have a fresh surface prepared for a new design. Thus, different thicknesses of stones must be used, and the distance between the bed and cylinder varies more than on a type-printing press. The cylinder is covered with a thick, elastic blanket or sheet of India rubber. The necessary moisture is applied to the face of the stone by rollers, which are at the opposite end of the press from the inking rollers. The damping rollers consist of iron cores, wound with several thicknesses of flannel and covered on the outside with a cotton or linen fabric. *Chromo-lithography* is the process by which one picture is printed from many stones in succession, each stone printing a different color. The comparative ease in making transfers of a design from one stone to another and the greater degree of accuracy in registering a number of colors over each other, have especially adapted lithography to color work. *Photo-lithography* is the process by which the design is placed on the stone by photography instead of by hand-drawing.

Litho. Brief for lithograph.

Litho Board. A slightly coated and sized, soft cardboard, similar to litho paper.

Litho Paper. A soft sized, smooth paper, carefully made and dried, so that when moistened during the various printing operations the expansion or stretch is very slight.

Lithotype. A print and the process of producing an impression in ink from a gelatine film which has been chemically treated, the method being similar to lithography.

Literal Error. In proofs, turned letters, transposed letters, wrong-font letters, and the like, as distinguished from errors of orthography, grammar, punctuation, etc.

Live Matter. Type composition or pages that have not yet been printed or molded for electrotyping; after it has been so used and there is no further need of it, it is dead matter, ready for distribution.

Locking Up. Tightening a form by means of quoins or screws, to prepare it for working on the press.

Locus Sigilli. Latin, the place of the seal; the initials L. S. placed before signatures in legal documents, etc. The typefoundries supply this in several styles for use in printed forms.

Logotype. Several letters, a syllable, or a whole word cast on one body.

Load. The amount of turning effort required of a motor, measured usually in units of electrical current or amperes.

Loading. A term applied to the various substances employed for the purpose, as is commonly supposed, of making heavy paper. Substances like China clay, kaolin, etc., are not added simply to give weight, but they serve to produce a smoother surface and to increase the opacity of the paper. Sometimes called filler.

Local Style. See *Style of Office*.

Long Cross. The long cross-bar of a book or newspaper chase; when it has two, the short bar is the short cross.

Long Letters. The italic f, j, or any letter so made that it covers the type body up and down. Also, vowels or other letters with a stroke over them to denote long pronunciation, as *ā ō ē*, etc.

Long Measure. A width of line longer than common for the size employed. A measure of twenty-five picas (12-point) would be normal for 12-point type; for 6-point type it would be long.

Long Page. A page longer than the prescribed length. In making up catalog and book work, it is customary to use a gage by which pages may be made of uniform length; but it may often happen that, because of a table, cut, or some other feature, a long page here and there is unavoidable.

Long Primer. A small size of type, in the old-style names, between bourgeois and small pica; approximately equal to 10-point.

Long S. The old-style roman lower-case *f*, now obsolete, except in reprints or imitations from old-style work. It is scarcely distinguished from the *f*, the only difference being the omission of the cross-stick on the right side of the upright stem.

Long Twelves. A plan of imposition in which the pages of a 12mo are laid down side by side in two rows of six pages each.

Low Case. Case with little type in it. A case is said to be "empty" when important boxes contain no letters.

Low Figures. See *Lining Figures*.

Lower Case. That is, the lower case of the usual pair as they are on the compositor's frame. Being the nearest to his hand, it contains the letters and characters most frequently used, namely, the small letters of the alphabet; hence, these letters are termed lower-case letters even when placed elsewhere, to distinguish them from the capitals and small capitals.

Low or Low-to-Paper. Said of a type, cut, electro, or any part thereof when its face does not come up to the exact height of the rest of the form. Very low printing parts in a printing form should be brought up from below by means of underlays, in order that they may be properly inked when the rollers pass over. See *Height-to-Paper*.

Low Spaces and Quads. Those in common use, distinguished from high spaces and quads used with type to be molded for electrotyping. See *High Spaces, Quads, and Leads*.

Low Line or Low-to-Line. See *High-to-Line*.

Loose-leaf Paper. Paper, especially a bond or ledger, suitable for books or binders, the leaves of which are easily removed or inserted.

Loose Punctuation. Open punctuation; a method of punctuation in which the marks are used only where absolutely necessary to make the sense clear; in contradistinction to close punctuation, where marks are used freely, as in formal or legal composition.

Ludlow Typograph. The Ludlow Typograph, with matrices and cabinets, comprises a system for setting all display composition, from 12- to 60-point face, on metal slugs. No mold or machine changes are necessary in covering this range of type faces, as all the sizes are cast on 12-point T-head slugs. The overhanging portions of the slug are supported by blank slugs, automatically cast on the Typograph. In the Ludlow system the compositor assembles matrices for his line in a matrix stick, which is graduated to the measure of picas; he justifies the line by use of uniform spaces and quads; locks the matrix stick on the Typograph and starts the machine in operation by pressing a lever, which causes the casting-mold to be brought up against the matrices. Into these the hot metal is forced from a pot that is kept continually heated. In addition to roman letters, full-kerned, italic characters are cast by this machine, the difficulties of sloping letters being overcome through the use of special matrix sticks, and matrices cut to an angle of 17 degrees. After the line is cast the matrix stick is released and the slug, which is trimmed type-high before the matrices are separated, is delivered into a tray attached to the machine. Lines longer than mold length are cast by using multiple matrix sticks in which a line of any desired length may be composed, justified, and cast in sections by advancing the stick after each cast. Lines shorter than the mold may be cast or cut in any number of pieces by dropping cut-off matrices in the places where it is desired to have the line cut.

Lumper. An unskilled man or boy employed in newspaper composing rooms, to sweep and clean up the place and do other miscellaneous work. The lumper is not a printers' apprentice.

Lye. Used for washing type after printing. Its use is not so common now as formerly, as gasoline, which is now in common use for many purposes, is convenient. The occasional use of lye, however, is necessary in order to keep type properly cleansed. A lye may be made from potash well diluted and used warm if possible. It should be thoroughly rinsed off with clear water. Before washing type with lye, electros or cuts with wood bases, wood furniture, reglets, etc., should be removed from the form, as the lye and water will quickly spoil wooden material.

Lumiere Autochrome. A process of color photography which reproduces colors from nature on a glass plate, in positive, with a single exposure. The glass plates are covered with a layer of dyed starch grains. These starch grains represent about equal portions of yellow-red, green, and violet pigments, and are protected on the plate by a waterproof varnish. Over the color film the color-sensitive photographic emulsion is added and the plates are supplied dry, ready for use. The starch grains are very small and do not overlap. The interstices between them are filled with an opaque substance so that no light can pass through the plate other than through the colored grains. The plate is placed with the glass-side toward the lens, and thus exposed, the image passing through the dyed grains before reaching the sensitive emulsion. This causes a series of color separations, as each grain acts either on the yellow-red, green, or violet filter. This process is very successful for the making of color-lantern slides, stereopticon slides, and transparencies.

M. In the roman numbers M signifies one thousand (1000). In making a new face of type, the lower-case m is used to fix the "line" of the face on the body. (See *H.*) As an initial letter or part of abbreviations M. and m. have many significations, as may be seen by reference to a dictionary list of abbreviations.

M's. Second quality in paper stock; that which is not up to the standard in the first sorting at the mill, though in some cases the imperfections may be so trivial as to be detected only by an expert. R (or *retrée*) is paper-maker's term for inferior paper.

Mackle. When part of the impression appears double because of a shifting of the paper while the impression is being made.

Machine Composition. A general term applied to all composition done on any of the several typesetting or slug-casting machines, such as the Monotype, Linotype, Intertype, Linograph, and Ludlow Typograph.

Machine-dried. Paper which has been dried on the paper machine by passing the damp paper over steam-heated drums.

Machine Finish. (a) In paper-making, a finish secured by pressing the sheet through the calender stacks at the end of the paper machine. (b) Uncalendered paper as it comes off the last drier.

Machine-folding. The folding of sheets which is done on a machine rather than by hand.

Machine Ruling. See *Ruling*.

Machine Sewed. Applied to books which have been sewed on a machine, and not by hand.

Madder. A plant found in India and parts of Asia; a dye or pigment obtained from it. Madder is used in forming pigments, as lakes, etc., which receive their names from their colors; as, madder brown, madder carmine, madder orange, madder purple, and madder yellow.

M. F. Paper. Machine-finished paper, applied to common grades, the surface of which is smooth enough for line-cuts but not for fine halftones.

Magazine. That part of a composing machine in which the letters or the matrices are stored, ready to be assembled into lines. See *Mergenthaler Linotype*.

Magazine Paper. Book paper suitable for printing and illustrations; used for magazines and other periodicals.

Magazine Stock. Stock consisting of old magazines which are to be de-inked and mixed with other fibers for making paper.

Magnesia. Carbonate of magnesia and powdered white chalk are frequently used as a substitute for proving of the etched surface of halftone plates. The magnesia is dusted into the entire plate and then rubbed off the surface, or in the form of a cube, is rubbed over the surface, but as it adheres in the etched areas, it offers a satisfactory means for demonstrating the tonal qualities of the plate. Magnesia is also used in making printing inks.

Mailing Board. A corrugated or specially pressed strawboard.

Mailing Card. A card bearing advertising matter, used for mailing; the stock so used.

Mailing Envelopes. Envelopes made for mailing purposes.

Mailing Machine. A contrivance to facilitate the pasting of address labels on newspapers, magazines, or other publications, or on wrappers for any of such publications. A small mailing machine made of wood and metal, is operated by hand. Skilled operators can paste from 6,000 to 10,000 addresses an hour. One of the first machines of this kind was invented by Robert Dick, of Buffalo, N. Y., and this machine is still made, although in greatly improved models. The main parts of a mailing machine are a shear or knife that cuts off the label from its web and pastes it on the newspaper or wrapper; a roller movement that causes an endless web of printed paper labels to pass

over a wooden roller, which is suspended in a fountain of fluid paste, and ascend therefrom to two small rollers, between which it is drawn and advanced to the edge of the shear, where it is cut off by means of a united movement of the apron and reel while the next label is brought into position to be cut and stamped onto the newspaper or wrapper upon which the mailing machine rests. These machines are made in various sizes, and will accommodate labels ranging in width from 1½ inches to 5 inches. See *Wing-Horton Mailer*. In establishments where many copies of a paper or magazine are mailed daily, weekly, or monthly, automatic machines like the Addressograph are employed.

Mailing Tube. See *Postal Tube*.

Mail-O-Meter. A machine for handling large quantities of regular open-end catalog envelopes, as far as the stamping is concerned, in any size up to 8½ x 11 inches. It will also seal any open-side envelope from the standard No. 6¾ size to a special size of 8½ x 11 inches. Where the open-side envelope with a gummed flap is used, the operations of stamping and sealing are simultaneous.

Majuscule. A capital letter. The earliest form of writing in Latin was in this style, but after a time the scribes found it easier to make small letters (minuscule) and capitals were used only for emphasis and ornamental purposes.

Make Even. To make copy come out even at the end of the line. When copy is divided into takes in the middle of paragraphs, it is necessary for the compositor having the first part of the paragraph to end even so that it may close up to the next take, which has been started at the beginning of a line. This custom was formerly common in newspaper and other hurried work, when composition was done by hand work and was given to many compositors. See *Begin Even*, *End Even*.

Making Margin. Putting furniture and other blanks around the pages in a chase, so that they will be printed in the proper place on the sheet.

Making Ready. Preparing a form on the press for printing, by giving each part the proper impression, setting the gages, etc. The make-ready is the tympan sheet and overlays for a particular form. Making ready comprises all the operations needed to make a satisfactory impression on a form.

Making Up. To arrange lines of type into uniform pages, with headings, page numbers, footnotes, etc., including the needed blank spaces. Making up usually includes all the operations needed after type has been composed and corrected on the galley until it is ready to place on the imposing-stone and lock up in the chase. In the case of newspaper and other large pages, making up is done in the chase on the imposing-stone.

Make-up Rule. A flat piece of steel about 2 points thick, the length of an established line, with a hump that projects above the top of the type when placed between the lines. The hump forms a handle which enables the workmen to push the rule down between the lines and move them up and down on the galley or in the form. The make-up rule, as its name implies, is used for making up on newspapers, periodicals, and on type matter of narrow columns.

Malachite Green. A green organic pigment used in the manufacture of printing inks.

Male Die. A die, employed for embossing on a press, in which the design or letters are raised above the surface, the raised part corresponding or fitting into the depressed part of the female or counter-die. The two dies are used in conjunction. Type is sometimes used for male dies.

Mallet. (a) A large wooden hammer, formerly used with a shooting-stick to drive up wooden quoins. (b) A wooden, rawhide, or composition head mounted on a handle and used in conjunction with an uncovered planer to plane forms or with a proof-planer to beat off proofs.

Maltese Cross. A religious sign used in rituals and prayer books in places where the sign of the cross was to be made in the service. See *Religious Signs*.

Manière Criblée. An old-time dotted style of engraving.

Manifolding Paper. A thin, strong paper, covered with carbon black on one side. It is used to make duplicate copies at one writing; by placing it face down on a blank sheet and laying another blank sheet on top, the writing made on the top sheet, with a strong pressure, or in a typewriting machine, will transfer the black on the manifold sheet to the blank sheet beneath. It is much used to make duplicate copies on the typewriter. Also called *Carbon Paper*.

Manifold Tissue. A tissue used for duplicating work when a large number of copies are to be made on the typewriter at one time.

Manila. (a) A strong grade of paper used for tags, wrappers, and the like. (b) A loose term indicating color, strength, and finish.

Manila Hemp. A plant found in the Philippine Islands. The fiber is strong and very suitable for ropes, which, when old, yield excellent paper pulp.

Manila Paper. A strong paper, usually of yellowish or light brown color, made from jute, gunny, old rope, etc.; so called because originally made from Manila hemp. Cheap grades are made from strong wood pulps.

Manuscript. Now understood to include typewritten, as well as handwritten words. The printers' copy may be manuscript or reprint. Abbreviations, *MS.*, plural *MSS.*

Manuscript Cover. A cover stock of bond quality to bind and protect manuscripts, briefs, etc.

Map Paper. A strong, high-finished paper possessed of good folding quality, suitable for the printing or lithographing of maps.

Map Type. A series of cast characters with which a compositor could set up a map or a diagram in type. The font consists of round, square, angular, and straight lines which can be put together with descriptive words, letters, and figures, so as to produce a diagram quickly and economically. For the compositor's guidance the copy was drawn upon a sheet lined with small squares. Since the introduction of process engraving, by which work of this kind can be done better, the use of map type is rare.

Marbled Calf. Calfskin made to resemble marble by chemical treatment. It is used for bookbindings.

Marbling. A process of decorating leather, sheets of paper, and the edges of books with variegated colors in irregular patterns.

Marbling Machine. A contrivance for the marbling of paper, cloth, leather, etc. It consists of a trough or color reservoir, divided into three or more compartments, each of which is designated for one of the working colors, and a system of tubes connected with the reservoir, which serves as outlets for the colors and distribute them evenly over the surface of the size. The size is made of Carrageen moss, or seaweed, which is boiled in water and strained. The pigments are sprinkled in liquid or dry form onto the surface of the size, and then single or double wooden combs are used to draw the colors through one another, after which the sheet of leather or other material that is to be marbled is laid face-down on the liquid in the reservoir.

Margin. The blank space between the face of the type matter or illustration, and the edge of the paper.

Marginal Notes. Side-notes, usually set in type smaller than the main page, placed in the margin.

Mark-off. A mark in the copy to indicate the place at which the same words of another copy or proof end, so that the sequence of several proofs or pages may be readily kept.

Marking Ink. Indelible, to mark linen, etc.

Mary. In jeffing, "if none of the nicks appear uppermost in throwing, the throw is called a mary," or mollie.

Mass. One of the main portions of a typographic or other design, readily distinguished and having some unity in itself, yet remaining in proper relationship to the whole scheme.

Mat. Abbreviation of matrix.

Mat-board. A board used by artists and photographers for mounting and other purposes. It comes in various sizes and shades.

Matter. Composed type.

Matt Surface. A dull, roughened surface.

Materials of Design. Masses, dots, and lines which compose the complete design.

Mathematical Signs. The arbitrary marks used in the science of numbers and quantities. Although the common Arabic and Roman numerals are properly included in the signs of this class, mathematical signs are usually understood as those used in arithmetic and algebra. For printer's use, the typefoundries cast them in sizes from 6-point to 12-point and sell them in special fonts.

Matrix. The shallow mold in which the face of a type is cast; also the papier-mache mold made from a page of type for stereotyping; the brass dies used on a type-casting machine.

McKee Process. A method of treating or rectifying electrotypes plates so that the make-ready is in the plate itself. This process does away with practically all underlaying, interlaying, and overlaying in making the plates ready for printing.

Measure. The width of the column or page of type; the width to which the compositor's stick is set for composing. Half-measure is when the width of page is composed of two parts, each set separately, and then placed side by side, as in tables, lists of names, etc. The unit of measure in book and job rooms is commonly the pica (12-point), and leads, rules, quotations, and other furniture are measured and named by their sizes in picas. In newspaper work, the measure of columns often is gaged by sizes other than the pica, the common widths of a single column varying between twelve and thirteen picas. The adjusting of a composing stick to the required measure should always be done with care, and, in order to insure accurate justification of a page, it should not be changed until all the lines of that length are completed. To set the composing stick accurately, use pica (12-point), lower-case m's set sideways. Some composing rooms are supplied with a set of brass or steel slugs or blocks, by which compositors are required to set their sticks.

Measuring Type Composition. To ascertain the amount of type set by a compositor. This is done by multiplying the number of ems in one line by the number of lines set, the result being in ems of the size of type used. In England the calculation is made by ens instead of ems. In measuring up type for the purpose of finding the cost of composition, headings, leads, slugs and quad lines are usually included as composed lines and the whole measured up as if solid matter. In this case the number of ems in the page is found by multiplying the width by the length of the page.

Mechanical Chalk Overlay. An impression of the halftone plate to be overlayed is pulled on a sheet of specially prepared paper. The freshly printed sheet is dusted freely with a prepared powder and

afterward the surface of the sheet is coated with a liquid fixative which holds the powder firmly to the sheet. This overlay process is a development of the wheel flour overlay much used by pressmen a few years ago. See *Overlay*.

Mechanical Wood Pulp. See *Wood Pulp*.

Medium. A size of writing paper, 19 x 24 inches, of printing paper, 18 x 23 inches. The size of double medium 24 (now often 25) x 38, is in this country the most common size for printing paper of all kinds.

Medium Finish. A finish that is neither highly calendered nor antique but intermediate between the two extremes.

Menu. A bill of fare; a list of food dishes.

Medical Signs. Characters used in medical literature by chemists, druggists, doctors, etc. They are usually contractions and initials from Latin words. See *Signs*.

Melting Pot. That part of a casting machine in which the metal is melted.

Mergenthaler Linotype. A line-casting machine invented by Ottmar Mergenthaler, first put into practical use in the office of the New York Tribune in 1886. The first machines were quite different in construction from those of the present day, though the basic principle is the same. In the strictest interpretation of the term the Linotype is not a *typesetting* machine. Instead of producing single type characters, it casts type-high metal bars or slugs, bearing on their upper edges, properly spaced and justified, the words of a complete line. These slugs are delivered from the machine properly assembled, and are available either for printing direct or for making electrotype or stereotype plates. They answer the same purpose and are used in the same manner as composed type matter. The Linotype consists, briefly, of four parts or mechanisms, arranged to work in harmony—the magazine or magazines, the assembling, casting, and distributing mechanisms. The magazines are in a sloping position on the top of the machine. Each magazine consists of two parallel brass plates the inner surfaces of which are grooved lengthwise for the reception of the matrices, also of brass, the edges of which bear the different letters or characters in intaglio. The Linotype is operated from a keyboard, not unlike that of a typewriter. The keybuttons are connected with their corresponding matrices in the magazine by a series of perpendicular steel reeds or rods, actuated by power-driven cams. These cams respond to the slightest touch on the keybutton and raise the reeds, which in turn operate the escapement mechanism in the magazine and release the matrices one at a time in the order in which the keys are depressed. As the matrices drop from the magazine they are conveyed by a belt to an assembler. Justification is accomplished by means of spacebands dropped between the words. The spaceband consists of two slightly tapered steel wedges, the outer faces of which are parallel. The lower of these wedges is about five inches long, and

projects below the assembled line of matrices. The line of matrices and spacebands are assembled to fill a line, the operator depresses a lever, which raises the assembled line, which is then automatically moved in front of a steel mold in a disk, and the face of the matrices presented to the slot in the mold, behind which is a pot of molten metal. This metal is heated to a fluid state either electrically or by a small gas or gasoline burner underneath the metal pot. The lower wedges of the spacebands are then forced upward between the words, thus justifying the line to the required length. As the line is justified, a plunger in the metal pot forces a quantity of metal into the mold and against the line of matrices. This metal hardens instantly and forms a slug with the letters in relief on the edge. A partial revolution of the mold disk carries the mold past a knife fitted closely against the back of the mold, which shaves off the surplus metal from the bottom of the slug and leaves it exactly type-high. Then the disk continues its revolution until the mold slot is exactly opposite an opening between two parallel blades. Here the slug is ejected between the blades, which shave off any excess thickness, on to a galley in proper sequence to the slugs which have been cast previously. After the slug has been cast, the line of matrices and spacebands is automatically lifted and transferred to a horizontal bar which captures only the matrices. The spacebands are left behind and automatically returned to their receptacle. An arm elevates the bar with the lines of matrices to the top of the magazine. Here the matrices are pushed into the distributor box, where they are halted momentarily and then fed singly to the distributor bar, which extends horizontally along the top edge of the magazine. The matrices for each character have in the "v" at their upper ends a series of notches or teeth different from every other character. The distributor bar is provided with grooves coinciding with the teeth in the matrices. These grooves vary in number and arrangement at different points along the bar. The teeth in the matrices engage the grooves in the bar, and are urged along it by means of conveyor screws until they reach the points where the grooves in the bar correspond with the teeth in the matrices, where they drop into the respective channels of the magazine from which they were originally released. The operator has only to manipulate the keys releasing the matrices, and at the end of each line move a lever which engages the mechanism that carries the assembled line to the mold. All the other operations are performed by mechanical power. As there are a number of matrices of each character, several lines may be kept in operation at once. As soon as the assembled line has been carried to the mold, the operator starts assembling the succeeding line without waiting for the casting and distributing operations to be completed, as they are entirely automatic and independent of the keyboard action. The latest models of Linotypes have many improvements over the original machine, such as double-letter matrices, for two different faces—three or four magazines on a single machine; two, three or four molds; adjustment devices for composing lines any faces up or down in size, and a slug up to 42 picas in length.

matter; a large variety of matrices for both straight and display matter and composition; light magazines for quick and easy changing; auxiliary magazines for additional characters or fonts; etc.

Meridian. A size of type in the old-style bodies equal to four-line small pica; rarely used.

Metal-lithography. A term to denote printing from zinc and aluminum, which are used as substitutes for stone in lithography. Metal printing surfaces of this kind may be used on rotary presses, where stones cannot be.

Metallic Overlay. See *Overlays*.

Methyl Violet. One of the inorganic pigments or water-soluble dyes used in making printing inks.

Metal Quoins. Patented iron quoins, made in several styles, as distinguished from the old-style wooden quoins. See *Hempel* and *Wickersham*.

Mezzotint Engraving. A method of copperplate engraving in which the entire surface of the plate is slightly roughened, after which the drawing is traced and then the portions intended to show highlight are strengthened. An impression made from a plate so produced, characterized by an even graduation of tones, is called a *mezzotint*.

Mezzograph. The mezzograph plate is a halftone made through a screen that has a grain structure instead of cross lines. This produces a texture not unlike the box-grain in appearance. In etching and re-etching most of the fine grains in the highlights disappear, leaving open spaces which give a coarse grainy appearance to the highlights; a print made from a mezzograph plate is called a *mezzograph*.

Micron. A unit of length, the thousandth part of a millimeter, or the millionth part of a meter; it is used in measuring ether wave lengths.

Micrometer. Short for *Micrometer Calipers*, which see.

Micrometer Calipers. An instrument for precise measurement used for finding the diameter or thickness of objects. The mechanical principle embodied in the construction is that of a screw of definite pitch, advancing in a fixed nut. An opening to receive the object to be measured is afforded by the backward movement of the screw, and the size of the opening is indicated by the graduations. The pitch of the screw, or distance between its threads, 40 to the inch, and the graduations on the barrel are figured 0, 1, 2, etc., at every fourth division. As these graduations conform to the pitch of the screw, each division equals the longitudinal distance traversed by the screw in one complete revolution, and shows that the calipers had been opened $\frac{1}{40}$ or $\frac{25}{1000}$ of an inch. The beveled edge of the thimble is graduated into 25 parts and is figured at every fifth division, 0, 5, 10, 15, 20, etc.

Each division when coincident with the base line of the division on the barrel indicates that the gage screw has made $\frac{1}{25}$ of a revolution, that is, $\frac{1}{25}$ of $\frac{1}{40}$ of an inch, or $\frac{1}{1000}$ of an inch; and that the opening of the calipers for a complete revolution of the screw has increased $\frac{1}{25}$ or $\frac{25}{1000}$ of an inch. Hence, to read the micrometer, multiply the number of divisions visible on the scale of the barrel by 25, and add the number of divisions on the scale of the thimble from zero to the line coincident with the base line.

Middles. The name given to a common cardboard prepared from waste or mechanical wood pulp. Used as a cheap basis for surfaced cards, produced by pasting paper of good quality on this cheap cardboard; hence the suggestive name.

Middle Tone. A gray tone; properly a neutral tone halfway between the lightest and darkest tones of a picture or a color. See *Half-tone*.

Midget Safety Quoin. These are small brass quoins that can be used in spaces 18 points wide, too narrow to admit the ordinary metal quoins. Two brass pieces are fitted together wedge-fashion so that by tapping one piece down flat with the other their sides will expand and tighten the form.

Miehle Press. A flat-bed two-revolution cylinder press, manufactured in Chicago since 1887. It is made in several types and sizes from a two-roller pony press, taking only a 22 x 34-inch sheet, up to a four-roller press that will print a sheet 50 x 73 inches. Two-color presses are also made which will print two colors on one side of a sheet in one impression. The presses weigh from five to more than thirty-two tons. The solid case side frames are provided with extended ends, giving ample bearing surface on foundation, and have the center cross-stay base and way-frames bolted firmly to them. On all four-roller Miehle presses the type bed and cylinder are driven by means of a large bed-motion shaft, made of steel. Mounted on the inner end of this shaft is the bed-motion gear, working in racks placed in the center line of the type bed, which location equalizes the work on the gear and type bed when the latter is driven back and forth and reversed at each end of the stroke. On the outer end of this shaft is mounted the bed-motion intermediate gear, working direct with the cylinder-ring gear. With the exception of the pony press, in which two tracks suffice, and also the 62-inch and larger presses, which have six tracks on account of the extra width of the bed, all Miehle presses are constructed with four full-length steel-faced tracks, with a number of steel, anti-friction rollers, set close together under the center of the bed. All cylinders have solid webs of metal connecting the center shaft with the outside surface of the cylinder, the whole being cast in one piece. The ends are solid metal sections with large journals on each end, which run in boxes on bearings. The cylinder is held down on impression by four hammer-tooled steel rods, connecting the cylinder boxes with eccentric blocks below. The boxes have bearings

close up to the ends of the cylinder, and when the latter is drawn down on impression the eccentrics have the full throw, giving a rigid and even impression. The construction of the Miehle reversing motion consists of a forged-steel crank, crank pin, and rollers, attached to the inner end of the driving shaft. These rollers pass between two steel-faced shoes, attached to the rack frame on each end of the bed, acting as a crank motion in stopping and starting the bed of the stroke. With this reversing mechanism, assisted by an air-cushion device, it is possible to run the press very fast. The construction of the fountain, with the ink roller, steel blade, thumb adjusting screws, and rigid frame, makes it possible to adjust the ink as required, to suit the form. The cam gear that operates the eccentrics, which raise and lower the cylinder, is so formed that the cylinder raises part way up to clear the form on reverse motion, stops for a sufficient part of a revolution to allow the sheet to pass from under the guide rests, and then raises to the full height of the feed-board to feed the next sheet flat and smooth. The Miehle press has two different methods of delivering the sheet, one printed side up, and the other printed side down. The cylinder may be tripped at will at any time, without waiting for a certain moment to apply it. The impression can be tripped as late as at the point where the grippers take the sheet, or about one inch of travel after that. Then, if the trip is applied after that time, it would have no effect on that full impression, but would trip and stop the following impression as long as the trip lever was held down. The two-color two-revolution press is practically a combination of two two-revolution presses, having two type beds, with separate ink distribution, and two impression cylinders, with a transfer cylinder between them. Paper is fed in the same manner as on the single machine, and after receiving on the first cylinder an impression, it is transferred to the intermediate, and from there to the second cylinder for a second impression of different ink. The speed being equal to the single machine, the production is about double in the same time.

Miehle Vertical Press. A small cylinder press in which the motion of the bed of the press is vertical; that is, the bed moves up and down, instead of horizontally. The cylinder also moves up and down, but its travel is in an opposing direction; that is, while the bed is traveling upward, the cylinder is traveling downward, and vice versa. The over-all dimensions of the Miehle Vertical are: width, 4 feet; length, 5 feet; height, 4 feet 6 inches. The net weight with motor is 2,550 pounds. The press is equipped with two form rollers with steel-gear vibrators, two composition distributors with steel-gear vibrator, a ten-inch full-length ink plate, a ductor roller, and a full-length fountain. A chase with inside measurements of $13\frac{3}{4} \times 19\frac{3}{4}$ inches will permit the locking up of a type form of $12\frac{1}{4} \times 19$ inches. A sheet as small as 3×5 , and as large as $12\frac{1}{2} \times 19$ inches can be fed and delivered by the automatic feeding mechanism, which can be operated at a speed of 2,000 to 3,600 sheets an hour. The feeding depends entirely on air separation and suction. The pile table holds twelve

inches of stock and is automatically maintained at its proper height. The pile table with its connecting mechanism swings entirely away from the cylinder rollers and form, thus permitting work on the make-ready material without unloading and reloading the pile table.

Mill Board. A very thick card, rolled hard and smooth, used for stiff book covers, etc.

Mill Brand. In the paper trade, the trade-mark and brand name belonging to the manufacturer and so identified, as distinguished from a private jobber's brand where the goods bear the jobber's identification but not the manufacturer's.

Miller Automatic Feeders. In operation the Miller Feeder is the mechanical counterpart of hand-feeding. The sheets to be printed are placed directly in front of the platen on a stock table, where they are kept in perfect jog by stationary fingers or guides which are adjustable to the various sizes of stock. Compressed air directed into the side of the pile serves to loosen or separate the top sheet; it is then lifted by means of air vacuum separator feet to the feed grippers which carry it over the platen to the gage pins—similar to the manner employed in hand-feeding. At this point the sheet is gripped by an automatic side-registering device which moves it into hairline register to either a right or left side-guide as desired. Simultaneous with the movement of the side-registering device the gripper fingers engage the sheet, holding it in perfect register throughout the printing stroke. As the platen opens, the sheet is picked up by the delivery fingers and gently deposited, printed side up, into the jogger located above the stock table, directly under the eye of the operator and easily accessible for removal of printed sheets. The Miller Feeder handles any flat stock, onionskin to three-ply cardboard, in all sizes from $3\frac{3}{4} \times 5\frac{1}{2}$ inches upward to the maximum feeder capacity, at speeds up to 3,000 an hour for the 8×12 size, 2,300 an hour for the 10×15 size, 1,800 an hour for the 12×18 size, and 2,200 to 2,400 an hour for the 12×18 Craftsman size. The attachments for the feeders include the Make-up Envelope Attachment, a Die-cut Envelope Attachment, a Small-sheet and Card Attachment, and various other appliances.

Miller Saw-Trimmer. Among the well-known sawing and trimming machines used in the graphic arts industries is the Miller Universal Saw-Trimmer. This machine saws and trims in one operation, gaging to the American point system. (Gages to the Didot or French point system can also be applied.) The combination of a saw-blade and a trimmer-head in one, so that they act simultaneously, is the basic principle of the machine. The saw and trimmer are mounted on the same mandrel, with the trimmer knives projecting through the saw-blade. The knives, when changed for sharpening, should be accurately readjusted. The micrometer gage is adjusted to points and fractions of points by turning the knurled worm. The right-hand graduations on the worm gage the lengths; the left-hand graduations, when used in conjunction with latter, gage the miters. To change the ad-

justment quickly, the gage may be lifted free from the rack and moved forward or backward as in the ordinary quick-setting vise. It locks automatically when dropped back into place. The gage has a capacity of 60 picas and is accurate to the one-thousandth of an inch. To gage lengths in excess of 60 picas an extra gage is obtainable which gives the machine a capacity up to 160 picas. The free-sliding main table of the machine is equipped with an elevating mechanism whereby it is raised and lowered in relation to the saw-head. This mechanism is controlled by a micrometer-point dial which is marked by points and half-points up to two picas for one revolution. Other models of the Miller trimmer are the Miller Special-Purpose and Bench Saw-Trimmer. The former is designed particularly for the large newspaper where more than one machine is required for slug-cutting during the "rush hours," and for the machine composition plant where slug-cutting only is required. The Miller Bench Saw-Trimmer is designed to meet the requirement of the smaller office where the amount of work does not justify a larger model.

Mimeograph. An apparatus by which stencils of written pages may be obtained for the production of an indefinite number of copies. A pointed stylus is moved as in writing with a lead pencil over a kind of rough prepared paper placed on a finely grooved steel plate, and the writing thus traced in a series of minute perforations. Stencils may also be prepared on typewriters, by throwing out the ribbon, thus preventing inking, and the type serving in place of the stylus for cutting the letters.

Mimeographing. A method of duplicating by means of type-writing on a specially prepared stencil. The stencil is placed on the drum of a machine known as the mimeographing machine, where each revolution of the cylinder automatically inks it, and an impression is made on the sheet of paper that is put through.

Mimeograph Paper. A rough-finished, semi-absorbent paper, usually laid, for use on mimeograph printing machines.

Minion. A size of type between nonpareil and brevier in the old-style type bodies, approximately 7-point. The minion made by different foundries often varied greatly in size, as did some of the other old-style type bodies. It is a size much used in newspapers, for notes, and in reference works. Minionette was a size varying slightly from minion, being a little smaller; it was formerly sometimes used for ornamental borders, but as a size for type was not used in this country.

Minnikin. A name rarely given to types half the size of nonpareil; the names half-nonpareil, or 3-point, are now given to types when made of this size, such as piece-fractions, accents, etc.

Minuscule. See *Majuscule*.

Minute Mark. The mark (') used to denote geographical or chronological minutes. Two marks (") denote seconds. This character is also used in other ways, as in dictionaries, spelling books, etc.,

to indicate accented syllables in pronunciation; in catalogs and commercial forms to express feet and inches like 2' 4".

Miscellany (*abbr.* Misc.). Miscellaneous reading matter used to fill up small spaces on newspapers in first editions. Later *killed* and supplanted with live news matter.

Misprint. A typographical error, made either through oversight or accident.

Missal Letter. An initial letter of any desired size, designed after the initials used in the old missal books. These letters are now employed to give a piece of composition a decorative appearance.

Miter. A bevel of 45 degrees on the ends of brass rules or other lines, so that they may join at a right angle on corners; old printers termed them *chamfered* rules.

Mitered. When the lines of a design meet at a right angle without overrunning each other; joints of leather or cloth at an angle of 45 degrees as when turned over on the inside of book covers.

Mitering Machine. A small bench machine used to miter brass rules, etc.

Mo. A Latin suffix, used on words like decimo (ten), duodecimo (twelve), etc. *Mo* or *mo* is used as an abbreviation when added to certain numerals in order to indicate the number of leaves made by folding a sheet of paper, as 12mo, 16mo, 18mo, 32mo, etc.

Modern Roman. That general style of roman type face which is distinguished from the old-style of roman by greater regularity of shapes, more precise curves, and delicate hairlines and serifs. The first distinctive type of this style was made by an Italian printer and typesetter, Bodoni, about 1775. It has since been very generally used, especially in books and newspapers, though the old-style face has of late years grown in favor for miscellaneous work. A comparison of Caslon old-style with a modernized old-style letter will show the distinctive features of each.

Monogram. A character composed of one, two, or more letters interwoven, or separate letters enclosed in a panel. Initial letters or names are commonly used in this manner and the device employed for stamping stationery, cards, etc.

Monotint. Printing in one tint of ink.

Mold. (*a*) On typesetting or casting machines, that part in which the body of the letter or the entire slug is cast. (*b*) In making paper by hand, the wooden frame enclosing the wire screen on which the pulp is formed into paper, is called a mold.

Molders. In electrotyping, the set of plates or patterns from which to make the duplicate electros.

Molding Case. In electrotyping, the foundation on which to put the ozokerite, together with the ozokerite or molding compound, is called a case. The foundation of the case may be of any suitable metal which will withstand the pressure of the molding-press. Sheet-copper an eighth of an inch thick, or lead, three-sixteenths of an inch thick, are most generally used for case foundations.

Mold-made Paper. A deckle-edged paper resembling that made by hand but produced on a machine.

Monetary Signs. The characters or abbreviations used in the United States and foreign countries to indicate sums or amounts, as dollars, cents, etc. The dollar sign was first used in a book entitled "American Accomptant; being a Plain, Practical, and Systematic Compendium of Federal Arithmetic," by Chauncey Lee, A. M. (of Burlington, Vt.), printed by William W. Wands, in 1797. On page 56 of his book, the Rev. Chauncey Lee gives the characters of "Federal Money," using the signs for the first time in a printed book, together with signs for the parts of a dollar, thus: / (mill); // (cent); $\frac{1}{2}$ (dime) $\frac{1}{4}$ (dollar). As he progresses he drops all but the \$ sign, using decimal points and a space between cents and mills, thus: \$16.45 2. It is assumed that Chauncey Lee invented the dollar sign by following the device of the pillars of Hercules, with the scroll entwining them, found on the old Spanish dollars. As there was but one typefoundry in operation in the United States in 1797, the Rev. Chauncey Lee undoubtedly secured the signs for the dollar from the foundry of Binny & Ronaldson, Philadelphia. Archibald Binny was a punch-cutter, and probably cut Dr. Lee's monetary signs. The first dollar signs regularly cast for sale to printers (in 1816) had two strokes through the tortuous line, as shown here: \$\$\$\$\$.

Monotype. A composing machine which casts individual types in the order of their use and sets them into justified lines of any length up to sixty pica ems. The Monotype was invented by Tolbert Lanston of Washington, D. C., and the first commercial machine was shown in operation in 1895. It was afterwards developed and improved by the Lanston Monotype Machine Company, and is now built in Philadelphia. The Monotype consists of two parts, one called the keyboard and the other the casting machine. Each part is operated independently of the other, so that anything which delays one does not delay the other, and thus there is more continuous production. The keyboard appears very much like that of a large typewriter with numerous alphabets, but an inspection shows that the keys are arranged according to the well-known universal typewriter keyboard arrangement which is generally acknowledged to be the best and fastest arrangement that has ever been devised. In addition to the keys for five alphabets and other characters, there are certain keys used for the control of the justification of the lines. As each key is struck by the operator, two perforations are made in a paper ribbon, instead of writing a character; the mechanism of the keyboard records the width

of the character and then moves the ribbon forward one space. As succeeding characters are struck, perforations are made, the width of the character recorded, and added to that of those already in the line, and the ribbon moved forward. When the line is nearly filled, the operator is notified by a bell or light. Then, observing how much the line is still open, the operator touches two keys and the justification is provided for. The mechanism is then ready for the next line. The motive power of the key is compressed air. The ribbon which has been perforated at the keyboard is known as the "controller ribbon" because the perforations in it control the action of the casting machine, which is automatic, by admitting compressed air to pistons and valves. The controller ribbon being placed in position on the casting machine admits air through the perforations as they pass over a series of openings leading to pistons and valves, and thus controls the motion of a matrix case containing 225 matrices. At each revolution of the machine the matrix case shifts to a position indicated by the two holes made by the keyboard and the proper matrix is presented over the opening of a mold, and a type is cast. This operation is repeated 150 times a minute. The justification is effected by the automatic shifting of wedges controlling the movement of the mold parts, and is directed by the last four holes punched in the controller ribbon by the keyboard at the end of the lines. As each type is cast it is pushed out of the mold into the line that is being formed. When the line is completed it is automatically transferred to the galley, the operation being repeated until the copy is all up. The casting machine is also used for the casting of individual type for hand composition, and by means of certain attachments, can make display sizes up to 72-point body, giving the machine a range of capacity from 4-point to 72-point. Other attachments and special matrices provide for the making of rules of many different faces, as well as leads and slugs, all of which may be automatically cut to any size desired from six picas to 25 inches in length. These additional units or attachments do not in any way detract from the value or utility of the Monotype as a composing machine though they enable the printer to adapt the Monotype to a large variety of work and thereby keep it continually busy.

Monotype Paper. A white book paper, made up in rolls and perforated at edges, used on Monotype keyboard and casting machines.

Monk. An old hand pressman's term for a blotch caused by an undistributed particle of ink getting on the form.

M. Paper. See *M's*.

Mordant. An acid by which the biting is done in etching; an adhesive substance for fixing a color or wash on another substance.

Mortice. The noun. Any cavity cut out so that an engraving, type, or something else may be inserted in it.

Mortised. When a cut, electro, engraving, or type has some part cut out, either in the interior or on the sides, to allow of the insertion

of other matter, like words or lines of type, brass rules, etc. A large letter will often be mortised in its blank parts, to allow closer fitting of small type beside it.

Morocco. A fine leather prepared commonly from goatskin, but an inferior kind is made of sheepskin, and tanned with sumac and dyed in various colors; said to have been first made by the Moors. Genuine Morocco makes the most durable binding for books.

Morton Lockup. This consists of one, two, or more Wickersham quoins attached to a steel side-stick, for use in special forms or places for which the side-stick is specially fitted. Fixing the quoin on the side-stick gives the advantage of having to handle only a single piece on the side of a large form, and the quoins are always held in place.

Motif. The original source for a decorative scheme or element applied to typography as well as other things.

Motto. A slogan or a sentence which expresses a sentiment, an ideal, or an aim.

Motto Card. A card or panel on which a verse, poem, sententious saying, or ideal is printed.

Motto Indention. To indent the lines so that a narrow paragraph is placed on the right side of the page; often seen in French title-pages, but not common here. Sometimes called French indention.

Mottled. Spotted with various colors, like card and paper novelties, etc.

Mounted. When a sheet or print is pasted on a larger and heavier sheet or a card. An electro or engraving is mounted on a base of wood or metal, to make it type-high.

Muller Stones. A stone or thick lump of glass, or kind of pestle, flat at the bottom, used for grinding pigments or drugs, etc., upon a slab of similar material. See *Brayer*.

Mullen Paper Tester. A finely adjusted device used in testing the bursting strength of paper by giving, on an indicating dial, the pounds pressure to the square inch required to rupture a sheet of paper.

Multigraph. The Multigraph is a machine for the producing and printing of form typewriting. Used for typewriting, it produces form letters (each an identical copy), at a speed of from 2,400 to 4,800 an hour. As a printing equipment it prints from special type or electrotypes which are attached to a small cylinder on the machine. The smaller machines are operated and fed by hand, but the larger and completely equipped have an automatic feed mechanism, electrical power drive, and self-inking attachment. The machine will print a sheet ranging in size from 5 x 5 to 8½ x 15 inches. The Multigraph can be equipped with a folding attachment which folds the sheets as soon

as they are printed. The Multigraph is used primarily for printing circular letters, office forms, advertising matter of a miscellaneous nature and other small jobs. It is used to some extent in printing establishments.

Multigraphing. The operations necessary to print on a multigraphing machine.

Multicolor Press. A multicolor press is a press that completes a sheet in all its colors at one operation. (It may be either a rotary or flat-bed press.) Rotary presses for fine multicolor printing (from half-tone process plates) must necessarily register each and every color at any speed; and the most careful make-ready is necessary in order to bring out the intended value of each color. A single large impression cylinder is provided, its grippers taking the sheet of white paper and never releasing it until all the colors are printed, thereby insuring a perfect registering of all colors. The usual succession of colors is yellow, red, blue, and black, but this is not necessary, and the colors are sometimes otherwise arranged. The plate cylinders are half the circumference of the impression cylinder and two sheets may be printed (on one side only) at each revolution of the impression cylinder. After allowing time to dry, the sheets of paper are printed on the second side. Manila slip-sheets are automatically fed to a mechanism which carries them under the large cylinder and delivers one with every printed sheet.

Multicolor Type. For printing letters in two or more colors. This makes necessary a separate type for each color, the different parts of each letter being made to register together. Wood types have been made in this manner for use in colored posters.

Multiple Mark. The multiplication sign, x.

Munsell Color System. A system of color measurement and notation devised by A. H. Munsell, an artist and teacher in the Massachusetts Normal Art School, whose book *A Color Notation* was first published in 1905. It defines all colors in the psychological terms of hue, value, and chroma. *Hue* is that attribute by which a red is distinguished from a yellow, green, blue, or purple. *Value* is that attribute by which a light color is distinguished from a dark one; i. e., the freedom of a color from gray. The Munsell hue circuit consists of five principal hues, Red, Yellow, Green, Blue, and Purple, and the five hues intermediate between them, Yellow-Red, Green-Yellow, Blue-Green, Purple-Blue, and Red-Purple, making ten major hues. The symbol for hue notation consists of its initial letter, as R for Red, YR for Yellow-Red, and so forth. Value is measured in ten steps from Black to White, the notation for black being 0/ and of white 10/. The figures 1 to 10 are written with a bar to the left which separates them from the third dimension, chroma. Chroma is measured in ten steps, as in the red chroma scale, from neutral gray (N /0) to full chroma (/10). For instance, the complete notation for a color similar to the

red in our flag would be about R 4/10—R because it is in the red portion of the hue circuit, 4/ because it is about four steps out of a possible ten from black to white, and /10 because it is full chroma. For further information see *A Color Notation* by A. H. Munsell. *A Grammar of Color*, published by the Strathmore Paper Company, Mitten-eague, Mass., is a direct application of the Munsell color system for the printer and advertiser.

Munsell Photometer. An instrument for testing pigments, paper, and other materials that reflect light rather than produce it.

Music Paper. A thick, soft, opaque printing paper, not hard-sized, and only slightly calendered. Used as its name implies.

Music Type. Separate metal characters used in the printing of music. See *Note-Printing*.

Must. In newspaper copy-marking, the order that certain copy takes precedence over other copy, and must be set into type and put into the form, is indicated by the mark "Must." In many offices only the editor-in-chief has the right to mark "Must" on copy. The guideline on the type galley conforms to the same mark.

Mutton Quad. The term "mutton" quad means the same as em quad, and is used in speaking to create a sharp distinction between the sound of em and en quad. Similarly the en quad is termed the "nut" quad. See *Em Quad*.

Mutton Fist. A name sometimes given to the index or fist.

Napier Movement. The bed motion on cylinder presses, made on the principle of the universal joint drive, originally designed by Napier. Presses built with the Napier bed motion have the rack-hanger bolted to the under side of the bed. It carries the rack which is so made that it may be driven either from above or below. It is driven by a gear which moves constantly in the same direction. When this gear is driving the rack from above the bed goes forward; at the end of the rack the gear drops below the rack and carries the bed back. It is possible to drive this gear in both positions because of a universal joint, or knuckle-joint arrangement, connecting the driving shaft of the press with the shaft driving the gear, called the intermediate driving shaft.

Natural. In paper-making, the natural color of the stock, a yellow, India, or buff tint.

Natural Forms. Motifs of design chosen from nature, either animate or inanimate.

Naturalistic Design. The direct imitation of forms taken from nature, retaining as much as possible of their original shape, color, etc.

Nature Print. An impression of a picture produced by nature printing from a phytoglyphic plate.

Nature Printing. The method of printing from a metallic or other surface made by the phytoglyphic process, in which the design on the plate is made direct from the natural object, used for plants, mosses, etc. See *Phytoglyphy*.

Neck. That part of type letter which is between the shoulder and the face; usually called the beard.

N. B. The abbreviation for *Nota Bene*, which see.

Negative. In photography, and in photo-engraving, or similar processes, the plate, usually of glass, but sometimes of paper or metal, or celluloid, which contains the image or picture in reverse, that is, the white parts are black and the black parts are white, which is the opposite or *negative* of the *final* or *positive* picture that is to be produced.

Neostyle. An apparatus used for the production of an almost unlimited number of copies from originals made by the typewriting machine or by handwriting on a specially prepared indestructible stencil paper. Thousands of copies can be printed in one hour. The duplicates can hardly be told from the original. On the self-inking automatic rotary Neostyle the stencil paper is attached to a printing cylinder. The cylinder has a maximum printing surface of 12 x 18 inches, accommodating a sheet 13½ x 21 inches.

New Era Multi-Process Press. A web-fed, high-speed flat-bed and platen press, which will print a number of colors on either one or both sides of paper, cardboard, or cloth. It has good ink distribution, and gives accurate register. Attachments can be had for slitting, punching, perforating, scoring, creasing, and cutting; also attachments for putting metal eyelets on shipping tags. The press will take stock varying in thickness from tissue paper to box board.

New Lead. In newspaper copy-marking these words are used as guide-lines on copy which is to be substituted for the introduction of a story which arrived earlier and is in type or has already been printed in an early edition of the paper. The new lead is accompanied with proofs or a clipping of the old "lead," which has the mark "kill" on the part which is to be discarded. Type galleys are marked to conform.

News. (a) An account or a report of a recent happening, or information coming from N E W S (north, east, west, south) regarding something that is to take place, usually published in a newspaper. (b) Among printers, anything pertaining to newspaper work, and the special equipment and material used, or the place in which newspapers are printed; as news paper, news ink, news press, news chase, news room, etc.

News Cases. A pair of cases consisting of the upper and lower case, containing all the characters required for newspaper composition. See *Case*.

News Editor. The person on a daily newspaper who has charge of editing the telegraphic and local news. The news editor usually directs the make-up of the news stories in the paper and he is sometimes called *make-up editor*.

News Paper or **Newsprint.** Common machine-finished, soft-sized printings, made from mechanical and chemical wood pulps, and containing usually about 70 per cent of mechanical.

News Writer. A writer of news stories on a daily newspaper.

News Stick. A composing stick with a fixed measure, as for an established width of a newspaper column.

New York Job Case. A style of type case with boxes for capitals, lower-case, and small capitals. The lower-case boxes are reduced in size to permit of two extra rows of boxes at the top, which accommodate the extra font of small capitals. See *Case*.

Nib. The small ear or projection on the end of a composing rule, by which the compositor takes the rule from between lines after setting.

Nick. The notch on the side of a type. In this country and England all foundry-cast types have the nicks on the under side of the letter. By observing the nicks as he sets from the case, the compositor can place the types in the stick right side up without stopping to scrutinize the face. The number of nicks varies on a type from one to five, and they may be made in different positions. As all types of a font cast at one time usually have identical nicks, the variation in size, number, and position of these marks also serve to distinguish one kind or size from another kind or size of type. Wrong-font letters may often be detected by a difference in nicks when a line is being justified in the composing stick. See *Type*.

Nickel-steel Electrotpe. An electrotpe upon the surface of which a thin film of nickel-steel has been deposited. Besides durability of face it withstands the chemical action of certain colored inks which cause trouble with ordinary electros. In making the nickel-steel electrotpe a metal composition (about 92 per cent nickel and 8 per cent steel) is deposited direct upon the wax or lead mold. A lead-mold produces an exact duplicate of the original pattern.

Niello. The art of decorating silver by incising designs and then filling in the incised parts with silver and lead. Called by the ancients Nigellum and by the Italians Niello.

Niepce, Joseph Nicéphore. A French lithographer who, with Louis Daguerre, was the first to make photographs (then called Daguerreotypes). Niepce is credited also with being the first person to

have made a photo-engraving through the discovery of a light-sensitive medium composed of asphaltum dissolved in a special oil, which he used on a metal plate that was afterward etched.

Niggerhead. A black mark, on the back fold of a signature between the first and last pages, produced by driving a small nail into the furniture of the form on the press. This black spot, or niggerhead, as it is called, aids in collating the sheets; also used to indicate the feed-edge of the sheet, in order to facilitate binding. See *Collating*.

Nippers. Slightly curved metal fingers fastened on a rod in the opening of a printing cylinder; they catch the edge of the sheet at the proper point as the cylinder revolves and release the sheet after the impression is made. Tweezers are sometimes termed nippers. See *Grippers*.

No. Abbreviation of Numero; Number. This term is used only before a figure or other number, and the capital N is required; no. is not a good form in type.

Nom de Plume. A French phrase, meaning literally, pen name. A fictitious name assumed by an author, who, unwilling to disclose his real name, desires to distinguish his writings from the mass of anonymous literature.

Non-chargeable time. Time necessary for the production of any job or work which cannot be charged directly against the specific job. This time, is, however, included in and forms a part of the overhead expense. See *Standard Cost-finding System*.

Nonpareil. A size of type equivalent to six-point; one of the most common sizes in use, half of pica. Several kinds of material are made in nonpareil or six-point size, like nonpareil brass rule, nonpareil reglet, nonpareil slugs, etc.

Nota Bene (*pron.* no-ta' ba-ne'). Note well, or take notice; usually abbreviated N. B. and placed at the head of an important explanation, especially at one end of an article intended as a final explanation of the matter, or to correct any mistake or omission in the original statement.

Note. An explanatory phrase, sentence, paragraph, or brief statement, usually set in smaller type than the main text, like footnote, sidenote, etc.

Note Heading. A printed heading, as of the name, address, business, etc., printed, lithographed, or engraved at the top of a sheet of note paper.

Note Paper. A size of writing paper, one-half the size of letter paper; the most common sizes used by printers are commercial note ($8\frac{1}{2} \times 11$ inches, folded) and packet note ($9\frac{1}{2} \times 12$ inches, folded); also applied to other small sizes of writing paper.

Note Printing. (GER. NOTENSTICH). The production of printing surfaces or plates for sheet music or notes may be accomplished in one of several ways. If the copy is reprint, it is usually reproduced photographically. Original manuscript, if not intricate, may be set in note-type by hand, and then an electrotype, stereotype, lithograph or other duplicate plate made from the type. When the copy contains difficult note-arrangements, the best method is as follows: A smooth, soft metal plate (of zinc and lead), on which the note-lines have been incised by means of a 5-pointed rastral, forms the negative plate upon which all characters are made with steel punches or needles. The note-puncher (a skilled hand-worker) has before him a set of punches in a compact stand. He takes out one punch at a time, places it in the proper position on the plate and with a gentle hammer-tap impresses it in the plate. All unusual characters not represented in stock punches must be engraved with a special tool or graver. After the notes and the text-matter (words) have been punched in a proof is taken and corrections made wherever necessary. Finally a transfer is made from the negative-plate, and this transfer serves for the lithographic or offset process by which the printed sheets are produced. *Note-printing* is also called *Music-printing*.

Notice. A written or printed sign or placard, containing certain information, or giving a warning.

Novel. A tale or narrative, in prose, written at considerable length. A novel is usually fictitious or imaginary, but many times it has a semi-historic basis, and contains characters and actions intended to portray real happenings.

N. Paper. An inferior to the M. grade, and in which specks and wrinkles are common.

Numbering. The printing of figures in consecutive order on envelopes, tickets, coupons, and other work.

Numbering Machine. A compact mechanism for printing numbers in consecutive order. It consists of two or more small wheels, each having on its periphery the figures 1 up to 0. These wheels are placed side by side in a metal case and are made to turn by a depression of a plunger attached to the first wheel. After setting the first wheel at figure 1 and the others at blank, the plunger is depressed at each impression and turns the figure wheel to bring up the other figures in succession. When the 0 comes up, the next wheel is turned to figure 1 and remains at 1 until the first wheel has again turned round up to 0, when 2 appears on the second wheel. This operation may be repeated up to the capacity of the machine, or 99 on a two-wheel, and 999999 on a six-wheel machine. Hand numbering machines are used on the desk or table. The printing is done by a downward pressure of the handle and a spring automatically moves it back, this motion giving the necessary turn to bring the next number into place.

Hand machines are frequently used by printers also, in order to fill in signatures of which some original sheets have been spoiled on a long press run. See *Typographic Numbering Machines*.

Numerals. The Arabic and Roman characters used to express numbers: 1 2 3 4 5 6 7 8 9 0, and I V X L C D M, or i v x l c d m.

Nut Quad. The *en* quad, or half of the *mutton* quad.

Off-cut. The smaller part of a printed sheet imposed in such a manner that the sheet must be cut before folding, as in a twelve-page sheet, which may be divided into a four-page and an eight-page sheet for folding, and then one set into the other to make the twelve-page signature.

Obelisk. Another name for the dagger, one of the old-style reference marks.

Oblong Page. One that is wider than its height: the reverse of an upright or more common style of page. See *Hypotenuse*.

Oblong Eight. An eight-page sheet or form imposed from the center. This method of imposition is preferable in forms containing title pages, copyright notice, or other introductory pages, with very little matter in them, as it brings the full pages outside, where they serve as bearers and often prevent slurring.

Octavo. When a sheet of book paper about the size of 19 x 24 inches is folded in two leaves it is called a folio; when folded in four leaves, a quarto or 4to; folded in eight leaves, an octavo or 8vo; in twelve leaves, a duodecimo or 12mo, and so on. Smaller folds are 16mo 24mo, etc.

Octodecimo. A sheet folded into eighteen leaves; more commonly 18mo.

Octuple Press. A newspaper rotary press that prints 64 pages at each revolution of the cylinders. See *Hoe Press*.

Odd. In paper-making, sheets that are not according to regular or standard sizes, weights, finishes, colors, etc.

Odd Folios. The page numbers which come on the first side of the leaf, 1, 3, 5, 7, 9, etc. The even folios are on the second side or back of the leaf, 2, 4, 6, 8, etc.

Oeser Foil. A foil, imported from Germany, made of a powder, paste, and other ingredients. It comes in sheets 4 x 18 inches in size and is used by bookbinders in stamping as a substitute for white ink. Oeser foil possesses peculiar covering properties. See *Gold Stamping* and *Gold Leaf*.

Off. A form is off when all the sheets required have been printed and it is ready to be taken off the press.

Office. The room or place where printers work; generally understood to mean the entire establishment, with machinery and other materials, as well as the counting room. In America this term has been used almost exclusively in relation to the place where printing

is done, although the term printing-house or shop is now often used; also called printery.

Office Corrections. Proofreader's or author's changes ordered after type has been set according to copy and for which the compositor is not responsible; in piece work such corrections are charged extra.

Off Its Feet. When type does not stand squarely on its base. Type must stand exactly on its feet in order to give a good impression.

Offset. When the face of a freshly printed sheet rubs and smuts the sheet on top of it. In the squeezing together of a number of sheets, as when under the clamp of a paper-cutter, ink that is not thoroughly dry will set off onto the facing page.

Offset Paper. A book paper made especially for offset or other lithographic printing; made as nearly as possible with a uniform finish on both sides.

Offset Printing. One of the processes of lithographic printing, in which the subject of the design is usually first made on a stone and then transferred to a zinc or aluminum plate, which is curved to fit the cylinder of the press. The imprint is made from the printing plate onto a rubber blanket from which the wet impression is offset on the paper web or sheet. See *Harris Offset Press*.

Offset Press. A press used in lithographic printing which prints by an indirect method, the impression being produced by the offset method. It consists principally of three cylinders of equal diameter, and an inking mechanism, which includes a damping roller. The lower cylinder is the blanket cylinder, which is covered with a sheet of India rubber, and comes in contact with the second cylinder, which carries the printing surface. The third cylinder is the impression cylinder, to which the paper is fed, and which transfers the printing or design to the paper. See *Lithography*, and *Harris Automatic Press*.

Oil Boxes. Channels on a machine containing oily waste which allows the oil to seep slowly upon the bearing.

Oil Cup. An oil-feeding device on a machine into which the lubricating oil is poured. See *Oil Boxes*.

Oil Wipe. A mechanism used to keep the tympan continuously oiled in order to lessen the offset.

O. K. Proof. Mark of approval on proof.

O. K. With Changes (or Corrections). Mark of approval on proof with minor changes.

Old English. The name given to a style of black-letter or text made in many varieties. **Old English.** De Vinne, in "Plain Printing Types," says of it: "The style of black-letter most approved by English readers is the printed form, which Blades says is modeled on the lower-case letters of the Bible of forty-two lines. Although it has been supplanted as a text-letter by the roman, it is so identified with early English printing that it fairly deserves its generally accepted name of Old English."

Old-Style. The two general classes into which roman type faces are divided are old-style and modern; numberless varieties of both styles are made, and many of them are often difficult to place in one class or the other. In general, the true old-style in use today may be said to follow closely that of the Caslon form. The type in which this dictionary is set is a modernized old-style. Another form of old-style is known as French Old-style or Elzevir. The type faces designed by Frederic W. Goudy are among the most notable ones that have been cast in recent years. The Goudy Old-style, Forum, and Kennerley series are the best known ones of this master-craftsman. See *Modern*.

Old-style Antique. A name sometimes given to a modernized old-style Roman type face that is better known by the word Bookman Old-style which has superseded the former.

One-sheet Poster. See *Poster*.

On the Printing Line. When the cylinder of a press is so packed that its surface and the surface of the form move at exactly the same speed.

Onionskin. A thin, translucent paper, with a glazed or unglazed finish. Onionskin is thicker than tissue, and is used for various purposes, including manifolding and second sheets on typewriters. The smooth-surfaced stock resembles the outside skin of an onion. The particular characteristics of onionskin paper are transparency, strength, and thinness for the weight, and the fact that the paper will lie flat at all times.

Opaque. (a) Not permitting the passage of light. See *Transparent* and *Translucent*. (b) A dense or non-transparent paint used in photo-engraving when it is desired to paint out or stop out certain parts of the negative that are not desired to print through.

Ooze Leather. A thin, soft leather made from sheep- and calfskins by forcing "ooze" or tan liquor through its pores by mechanical means. This leather is usually finished with the flesh-side out, and is made in a variety of colors. It is used for bindings on small books of a special nature and for college and school annuals.

Open Punctuation. See *Loose Punctuation*.

Open Matter. Matter widely leaded or containing many short lines; in piece work called *fat*.

Open Spacing. Wide spacing, as in matter that is widely leaded.

Opisthographic. A pedantic term for printing or writing on both sides of a leaf.

Optical Center. The center of a page or sheet as it appears to the eye. This is often at variance with the actual or geometrical center, especially when judged by head and foot margins; hence the expression, "high center."

Optical Illusion. An error to the average eye, in the perception of certain lines, angles, and spaces. Recognized by the designers of type and typography.

Optimus Presses. Babcock Optimus two-revolution presses are built in nine different sizes, adapted to print all of the popular sizes of sheets from 23 x 33 inches to 44 x 64 inches. The smaller sizes are made in the two- and three-roller styles, all of the larger being four-roller. On all of the larger sizes of presses, the bed is supported by six tracks on massive girts, four of these tracks being adjustable to compensate for wear. The bed motion is self-contained, having a universal ball coupling and ball-bearing reversing mechanism. The inking mechanism is provided with rests and ball sockets, so that one can easily remove or replace any of the rollers. On the larger sizes the rollers can be thrown into or out of action collectively or individually, as desired, whether running or not. On all except the smallest size, the table rollers are positively driven from the bed through a spiral shaft and spiral gears. The delivery is of the carrier type which conveys the sheet forward on tapes and then rolls back out from under it, allowing it to fall onto the pile easily. Babcock one-revolution presses are built in eleven different styles and sizes covering the popular sizes of sheets from 19 x 25 inches to 35 x 48 inches. They are known by the trade name of Standard, Regular, Reliance, and Express. They are of the general type known as drum-cylinder presses. The cylinder makes one complete revolution per cycle, one side being cut away to allow the bed to pass underneath on its back stroke. These presses are built with both table and rack-and-screw distribution, the rack-and-screw being the most commonly used. On these presses the entire inking mechanism is arranged to slide forward away from the cylinder. The Standard, Reliance, and Express presses are rack-and-screw distribution, while the Regular is table distribution. Babcock one-revolution presses are built with the Universal ball coupling bed motion and two of the sizes (known as the Express) are built with the complete Universal ball coupling and ball-bearing bed motion. All sizes and styles have the safety gripper motion similar to that used on the Optimus presses. No damage results when the grippers are tipped back and the press is accidentally started, as was common on the old type of drum-cylinder press.

Oriental Type. That used for the Eastern languages, Hebrew, Syriac, Arabic, etc.

Original. The first engraving or plate, as distinguished from an electro or other duplicate; original copy.

Ornament. A floret of small decoration cast in type.

Ornamental Brass Dashes. These were more commonly used twenty years ago than now. The typefoundry specimen books show a great variety of patterns.

Orthography. The art or proper mode of spelling words; spelling.

Orthochromatic or Isochromatic Negatives. A negative of a vari-colored original, showing in one color the correct relative values of the colored copy. These negatives translate the values of colors into relative values of black and white. Called "orthoc" for short.

Orthochromatic Plates. Photographic plates made by using eosine or some other dye in the silver bromide emulsion with which the plates are coated. These plates are sensitive to the green-yellow light rays, as well as to those affecting ordinary photographic plates. Used in making negatives of color subjects for black-and-white work.

Ounce Mark. The sign for ounce in apothecary's weight.

Out. An omission of words.

Outer Form. The form which contains the first and last or outside pages of a signature when the work is done sheetwise. On a sheet of eight pages printed in two forms, pages 1, 4, 5, 8 are the outer form; pages 2, 3, 6, 7 are the inside form.

Outlined. Said of a halftone engraving with the background screen cut away entirely, leaving only the objects of the picture. A vignetted halftone has the background shaded off gradually.

Outline Halftone. A halftone in which the photographic background is cut away. This is usually done on the negative.

Outline Letters. Types which print the outlines of the character, in distinction from those which print the full color. Many faces are now made in outline as well as solid.

Outlook Envelope. A trade name for an envelope having on its front side a panel, with or without transparent cover, through which the address on the inside sheet (when this is properly folded) can be seen. Also called *Transo Envelope*.

Out of Boards. See *In-Boards*.

Out of His Time. When an apprentice has completed his term of apprenticeship.

Out of Letter. Out of type; when the case is short of letters or sorts needed.

Out of Page. The first page of a sheet; it usually has the signature mark at its foot.

Out of Register. When the pages on both sides of a sheet do not back each other accurately the sheet is out of register; or when the two or more colors of a job do not strike in proper relation to each other the job is out of register.

Out of Sorts. When any needed letter or other character has been all set from the case, the compositor is out of sorts. See *Empty Case*.

Outset. See *Inset*.

Outside Form. See *Outer Form*.

Outside Sheets. The top and bottom sheets of a ream or bundle of paper usually damaged and not included in the count.

Out: See Copy. Marked on the margin of a proof to signify that the compositor has omitted something and directing him to refer to the copy.

Ovals. Brass rule forms of oval shape, for labels, etc. They are made by typefoundries in several styles of face, and are troublesome things for the compositor when he must justify a lot of small type inside of them.

Overhang. The cover of a book is said to overhang when it extends beyond the edge of the inside leaves, in distinction from a cut-flush cover. The term is applied to booklets, pamphlets, or other objects which project over or extend beyond certain parts of a whole.

Overlay. A piece of paper put on the tympan to give more impression to a letter, line, or part of an engraving. The term *Cut Overlay* is applied to various lays or pieces of paper used in cutting out or patching up in making ready engravings, and this term is in distinction from *Sheet Overlay*, which is not cut out. Overlays for halftone engravings are now made of metal, as well as a sort of rubber paste applied to the tympan with a brush, etc. The metallic overlay consists of a thin sheet of zinc upon which an inked impression of the engraving has been made. After this impression has been "fixed" by chemicals and heat, the zinc is immersed in acid and etched—the light parts are eaten away and the dark parts remain. This zinc sheet is then fastened in place on the tympan and a top sheet drawn over. See *Mechanical Chalk Overlay*.

Overlapping. As referred to grades of paper, those which are almost similar in quality and include most if not all of the characteristics of others.

Overlay Knife. A small, flat piece of steel, about six inches long, with one end finely sharpened, especially adapted for cutting out paper overlays; a pressman's knife.

Overrun. All paper direct from large mills is ordered by the "ton plus overrun," which means that the customer agrees to take the ton and up to 5 per cent over; and, conversely, the customer must accept an *underrun* of 5 per cent as a "good delivery." It is impossible to determine the exact number of pounds that a given quantity of pulp will produce.

Overrunning. Taking words backward or forward from one line to another, in correcting.

Overtime. Work done after the regular working hours, which is usually paid for at increased prices.

Own Paper. See *Its Own Stock*.

Oxford Corners. Border rules crossing and projecting at the corners, as on title pages or cards.

Ozokerite. A resinous mineral wax of the paraffin series, used as a molding composition in electrotyping. It is a mixture of hydrocarbons in various proportions, the exact nature of which is somewhat in dispute. In its pure state it varies in color from black or dark brown to light yellow, and in some cases has a dark greenish hue. Its principal source of supply is Galicia, in Europe.

Package Label. A printed slip of paper, usually gummed, for sticking on packages.

Packing. The material used for tympan, applied more particularly to the covering around printing cylinders. See *Hard Packing*.

Packet-head. Ruled or unruled writing paper, 6 x 9½ inches in size. See *Notehead*.

Pad. A number of small sheets of one size glued on one or more edges; a convenient form for single sheets of stationery, memo, blanks, etc., as they can be held together until used one by one. Padding is done by carefully jogging the sheets until the edge of the pile is smooth, then with a brush covering the edges with a specially prepared elastic glue. Also called a *tab*.

Page. One side of a leaf of a book or newspaper; a page of type is a composed form that would be printed with margins on all sides.

Page Cord. The twine used to tie up type jobs or pages.

Page Gage. A measure to determine the length of the page of a work; commonly a piece of reglet or brass rule notched to show the proper length and used by the make-up hand to keep pages of a book of uniform length. See *Gage*.

Page Papers. Sheets of heavy paper or card upon which tied-up pages are placed for storage, instead of keeping them on galleys; also called *page shoes*.

Page Proof. A proof taken after the matter has been made into pages. Also called *form proof*. See *Proof*.

Pagination. The numbering of pages of a book, etc.

Paging Ink. A special ink for use on paging machines.

Paging Machine. An automatic numbering machine for consecutively numbering the pages of blank books, etc. See *Numbering Machines*.

Pallet Knife. A thin, flat, flexible steel knife, used for mixing inks.

Palimpsest. A bibliographer's term to denote a parchment or other sheet which has been written upon twice, the first writing having been wholly or partly erased to make room for the second. Manuscripts of classical writers were often treated in this manner during the Middle Ages, and the original writing on some of these has since been restored by washing off the second writing and freshening up the first by chemical and other treatment.

Pamphlet. One or more printed sheets stitched together, but not bound like a book.

Panel. Any square or rectangular design enclosed by rules or borders; an auxiliary part of a piece of type composition that has been separated from the main body by being enclosed with a border.

Panchromatic Plates. Photographic plates that are sensitive to all colors of the spectrum. They are coated with light-sensitive emulsion which contains pinacyanol, ethel red, or other dyes. See *Color Separation*.

Panoramic Camera. This is a camera for taking continuous views and large groups. With it several hundred persons can be photographed at one time by posing them in a semi-circle. The camera is provided with a mechanism which permits it to revolve through the arc of a semi-circle, and at the same time unwinds the film behind the exposure slot.

Pantograph. An instrument for mechanically copying, tracing, or cutting a design in duplicate, either in the same size, or smaller or larger. It consists usually of four rods or arms held together by adjustable pins. Two points of this frame move in unison if a third point is held stationary, and if one of these two points is moved over the pattern a pen or cutting tool will reproduce at the other point.

Paper. The thin sheets of material upon which nearly all printing is done. Paper may be made from all varieties of vegetable fibers, those most commonly used being linen and cotton rags, hemp, jute, esparto, straw, and wood. The raw material necessary for paper is cellulose, the indestructible walls of the microscopic cells of which all vegetable fibers are composed. The quality of paper is dependent upon the quality of cellulose, and as cotton comes nearest to pure cellulose it makes the best paper. Paper is made by grinding, bleaching, beating, and boiling these fibers until they are reduced to a fluid pulp, in which condition they readily mat or felt together when the water has been pressed out. Paper was formerly made by hand, the operation being to dip the pulp from a vat with a mold having a screen bottom; when the water drained away the remaining film of interlaced fibers was pressed out and dried. Some kinds of writing, drawing, and printing papers are still made in this way, but the great bulk of paper now

used is made by machinery. Paper is made in a great variety of qualities, from heavy drawing board to the thinnest tissue, and in every color and shade. The more common kinds have the surface finished in various styles. Antique finish is really an unfinished surface, the paper being left rough by very slight pressure of the machine rollers; machine finish is the surface imparted as it passes once through the ordinary machine rollers; calendered paper is passed through a set of extra rollers, called calenders, which subject it to a heavy pressure, the degree of polish being governed by the number of rollers and amount of pressure; coated paper is a machine-finished paper that is coated with fine clay and glue and polished in a stack of friction calenders; linen finish, pebble finish, and various other surfaces are given by running the sheet between rollers which have their surfaces prepared to give the desired impression. For some purposes, like newspaper printing, paper is made in a continuous web of great length in rolls, the printing being done from the uncut web and the sheets immediately cut off in another part of the machine. Paper is, however, commonly handled in sheets, the size of which varies somewhat according to the fashion or special use to which it is put. See *Deckle-edge*, *Laid Paper*, *M. F.*, *Wove Paper*, and other headings.

Paper-Cutter. A machine for cutting and trimming paper. It is a necessary article in every printing office and bindery, and is made in many styles and sizes. Small paper-cutters are made to set on a bench, and the knife operated by means of a hand lever; large ones stand on their own frames on the floor, and may be operated by hand-lever or by power like other machines. In addition to the knife, which is movable up and down in its frame, the machine must have a clamp to hold the pile of paper while being cut. Another convenience is a movable gage on the table, so that any required size may be cut and any number of piles made of one size. Paper to be cut should be jogged up evenly and the top sheet of the pile carefully marked where the cut is to be made, as mistakes in cutting paper are costly. When cutting expensive paper, have a waste sheet on the top and bottom of each pile to save good sheets from spoilage.

Paper Knife. A small implement for opening letters and cutting the bolts or folded edges of untrimmed magazines and pamphlets. A steel or bone folder, or even a piece of thin reglet with its edges tapered off, is oftener used by printers for these purposes, a paper knife being a desk convenience.

Paper Ruling Machine. See *Ruling Machine*.

Paper Sizes. The sizes of printing papers range from 14 x 17 inches to 48 x 72 inches, and it is always safer to specify the size of a sheet, rather than to depend upon the old-time arbitrary names. The size 25 x 38 is now the most common one for book papers; 28 x 44 and 32 x 44 also are sizes in which papers are to be had in greatest variety. From the last two, by cutting in halves, are obtained two sizes (22 x 28 and 22 x 32) which were once common, but which are now rarely

carried in stock by paper houses. Other sizes of book papers not so common are 26 x 40 and 28 x 42. Flat writing papers come in a great variety of sizes and the trade names are still more or less in vogue. The sizes of flat writing papers are:

Cap.....	14 x 17
Crown.....	15 x 19
Demy.....	16 x 21
Folio.....	17 x 22
Double Folio.....	22 x 34
Double Cap.....	17 x 28
Royal.....	19 x 24

The following are sizes of ledger papers, usually of the best grades only:

Crown.....	15 x 19
Super Royal.....	20 x 28
Double Demy, long.....	16 x 42
Double Demy, broad.....	21 x 32
Medium.....	18 x 23
Imperial.....	23 x 31
Double Medium, long.....	18 x 46
Double Medium, broad.....	23 x 36
Double Royal.....	24 x 38
Double Elephant.....	27 x 40
Elephant.....	23 x 28
Columbier.....	23 x 34
Atlas.....	26 x 34
Antiquarian.....	31 x 53
Emperor.....	48 x 72

The last five are high-grade ledger sizes and not often called for. All Bristols in white and tints are $22\frac{1}{2}$ x $28\frac{1}{2}$ in size, except pasted superfines, which also come in 21 x 33, and index bristols, which are $20\frac{1}{2}$ x $24\frac{3}{4}$ and $25\frac{1}{2}$ x $30\frac{1}{2}$. Plain and coated blanks and signboards, which generally run from 3- to 18-ply in thickness, are made in sizes 22 x 28. Car sign board, double-coated on one side, is made $22\frac{1}{2}$ x 42 in size, the usual thickness being 5-ply, or .018 and .021 of an inch, called points by paper dealers. Railroad and tough-check boards are made in 22 x 28 and come in several different colors, in thickness from 3- to 8-ply. Pulp and strawboard, size 26 x 38, is put up in 50-pound bundles which contain 40, 50, 60, 70, 80, or 90 sheets each, their thickness being indicated by these numbers. No. 50 pulp or No. 60 strawboard are the thicknesses most frequently used for blocking. Binder's board, 22 x 26 in size, is tied 20, 25, 30, or 35 sheets to the bundle of 50 pounds.

Paper Tester. See *Mullen Tester* and *Tensile Tester*.

Paper Up. To wrap type or sorts in paper, as of matter that is to be put away for future use.

Papeteries. Various kinds of writing paper with envelopes to match, etc., such as are sold by paper houses and stationers.

Papier Maché. Mashed paper; a hard substance made from paper pulp mixed with size or glue which may be formed, while soft, into any desired shape. The papier mache method of stereotyping uses a matrix made up of sheets of blotting and tissue paper pasted together with a mineral paste.

Papyrus. A kind of plant formerly cultivated in Egypt and used for making paper. It does not now exist there, but is found in some other places. It was grown on the delta of the Nile and was used for other purposes besides paper-making, although this was its chief use. It is said to have grown to a height of ten or twelve feet, and stood partly in the water like a bulrush. The parts used for paper were the thin layers between the outer bark and the inner pith. These layers were laid side by side and other fibers placed crossways, the mass being then beaten together and held by a fine glue or paste. Papyrus was made in sheets of different sizes, although much smaller than that we are used to in modern paper, and the quality also differed greatly. Sheets and rolls of papyrus manuscripts many centuries old are found with mummies and in other places, and have preserved to the modern world valuable records of ancient Egyptian history.

Paragon. An old-style of type equivalent to two-line long primer; or what would be 20-point in the point system.

Paragraph. One or more lines of a composition placed together, usually distinguished or separated from other matter by the indentation of the first line and a break in the last line. The paragraphing of a composition is commonly the author's duty, and no rules can be given the compositor except to "follow copy" where that is clear. The general custom is to make a new paragraph when there is some change in the sequence or thought. A paragraph may consist of one short sentence or it may include a number of long sentences. The modern practice is to make paragraphs freely, as tending to make the composition easier to read. The usual indentation is an em quad at the beginning of matter set in narrow or medium measures; when the lines are long the indentation is increased to two ems; even three or four ems may be used in very wide columns of small type. As a rule, wide-leaded and wide-spaced lines will need more indentation than close-spaced, solid matter. The indentation should be enough to indicate the paragraph clearly, but not so much as to make distinction unduly conspicuous. When the paragraph indentation is wide, the last line of the preceding paragraph should have more than a short word or syllable in it, otherwise the extra-wide break in the matter will be a blemish on the page.

Paragraph Mark. (a) The most common form is this (¶), which is really the letter P reversed, with the white part black and the black part white for distinctiveness. Paragraph marks for use with the black-letter or Old English are of this style (¶) and some variations.

Typefounders have in recent years made several styles of paragraph marks, and they have become common in miscellaneous work. (*b*) In newspaper copy-marking, either the regular proofreader's symbol is used or a heavy capital L (with the stem to the left) is made at the left and bottom of the word which is to begin the paragraph.

Paraffin Paper. A paper, usually quite thin, which is grease-proof and air-tight; articles wrapped with it do not stick to the paper. It is made of wood pulp and paraffin wax.

Parallel Marks. One of the old-style reference marks. (||)

Parchment. A sheet of writing material prepared from the skins of goats, sheep, and other animals. See *Vellum*.

Parchment Paper. A thin, tough, transparent paper, made by specially treating unsized paper having a high rag content; it is used for wrapping of meats, butter, and other fats. Vegetable parchment is a similar paper, but is made of vegetable fibers and rags. The name parchment is also applied to a class of high-grade printing paper made to resemble real parchment.

Parenthesis (*plural* parentheses). The upright curved strokes, often called curves, used in pairs to enclose words, figures, or other matter in the body of a sentence; also, matter thus enclosed. () The use of other punctuation marks in conjunction with the parenthesis is a puzzling question to many compositors, owing to the arbitrary rules and whimsical practices of writers and proofreaders. The safe rule is to use punctuation marks as if there were no parentheses, omitting points between the parenthetical matter and the word or clause to which it belongs; if this word or clause is followed by a point, then the point should be after the parenthesis. It was less than half (46, to be exact) last year.

In that year (1898), because of dispute, he left.

The door was open; he (the witness) saw no coat.

The Salem (Mass.) Gazette was established in 1700.

Passing the Galley. An old-time practice in composition, when each compositor, as he completed setting and correcting his take, made up the matter into pages and then passed any left-over lines, with heading and page number, to the person having the next take; in this manner each compositor in turn completed his part and laid the pages in order on the imposing-stone for locking up. Nowadays making-up is usually done by another hand beside the person who set the type; in books and newspaper rooms this part of the work is specialized. In newspaper offices, where a number of compositors have set type on one galley, each with his number or slug at the top of the lines he set, the galley is passed from one to the other in turn for corrections when the proof is returned. In this matter the practice is for the compositor whose take is at the top of the galley to correct his errors and if the next take has three or more errors, to pass the galley to the next; if, however, the following take has only one or two minor

errors, he is expected to correct them also and pass the galley to the compositor whose take shows three or more errors. The rule varies somewhat in different places regarding the number and kind of errors which will pass a galley, but the custom favors a compositor who sets a clean proof.

Passing the Make-up. Same as passing the galley in book work.

Pasters. Small hand-bills, slips, or notices, pasted on fences and walls, or on large prints, lithographs, etc.

Pasteboard. Common board, made by covering middles with pastings. See *Middles*.

Paste-down. The part of the fly-leaf sheet that is pasted onto the cover of a book.

Pasted Stock. In the paper trade, bristols, weddings, or other stock which have been pasted together in two or more thicknesses; known as two-ply, three-ply, etc., according to the number of sheets pasted together; pasteboard.

Patch Up. In making ready on press, to paste pieces on the tympan sheet to bring up the impression stronger in spots; usually the final touches in making ready with overlays; also called spotting up.

Patent Block. A trade term for several kinds of wood and metal bases upon which electros or engraved plates are mounted. For use on a press they are of a height to bring the face of the plate level with the type face, and each block has clamps or catches on the sides to hold the plate securely. There are now several styles of metal bases, of variable sizes, and constructed on a unit system; after assembling a number of units to make the desired size, the plate is fastened on top and the whole bound together by screw clamps. See *Sectional Blocks* and *Bases*.

Patent Outside. Said of a newspaper or other publication having one side printed at a city establishment making such work a specialty, while the other side, usually containing local news, etc., is printed in the home town. This arrangement is an economical one for the publisher in a small place, as he can purchase partly printed sheets, with stories, household receipts, and miscellaneous matter, at a price little in advance of the white paper, thus saving the expense of setting up and printing one-half of the sheet. Newspapers of this class are known as "patent" outsides, or insides according to whether the part supplied is the outside or inside of the completed sheet. The economy in producing a "patent" sheet comes from utilizing the same matter for many newspapers issued in different places, the changes of headings, date, etc., being all that is required to print each paper after the pages are once set. The patent outside is not now so common as it was twenty-five years ago, publishers having a natural pride in producing "home print" paper whenever possible; the greatly increased facilities now within reach of the "country" printer, with cheap machine com-

position, as well as the more convenient ready-set stereotype plate that is now furnished daily by the central offices in large cities, all having tended to make the "patent outside" an antiquated method of publishing. Also called ready print.

Patent Roller. Originally a roller made by a patented formula, as when glycerine was first used in the composition. The term came to mean that kind of a roller in which glycerine was first used, in distinction from the old-fashioned glue-and-molasses roller.

Patent Space. Type spaces of the thickness of two five-to-em spaces; thicker than the three-to-em and thinner than the en-quadré. This space is common in 12-point and larger sizes, but the name is not now often employed.

Pearl. A size of type in the old-style bodies approximating 5-point in the point system. It is the smallest size of type in common use; several smaller sizes are made (diamond, brilliant) but they are only practical for occasional service, on account of the cost of making and handling and their fragile nature.

Pebble Finish. One of the many novel surfaces given to paper nowadays. Like some other finishes, grained, linen, crimped, etc., it is produced by passing the sheets with strong pressure between steel rollers having a surface of the desired pattern. Halftone engravings are sometimes printed on highly polished coated paper, to get a clear, sharp impression of the delicate parts, and when thoroughly dry the sheets are run through a pebbling machine to get rid of the shiny surface and give softened photographic effects.

Peerless Press. An old style of platen jobber using a toggle motion to give the impression. This press is no longer being made, but there are still a number of them in use.

Perfecting. The printing of both sides of a sheet; the reiteration. A perfecting press is a machine which prints both sides of the sheet before it is delivered.

Perfecting Press. That style of press which prints both sides of the web or sheet of paper at one time; the pasting, folding, and counting of the printed copies is also done during the same operation.

Perforating. To punch lines of small holes or slits in a sheet so that it may afterward be torn off with ease. Scoring is merely to crease a sheet so that it will bend or fold at a given place.

Paring. In bookbinding, gradually reducing the thickness of the leather at the ends of a volume.

Perforating Machine. A special machine used in binderies and other places. It consists of blades of large or small needles held in such a manner that they may be punched through a sheet placed on a table below. Another style of perforating machine is a small wheel

having on its periphery a series of small pins; this is adjusted on a table and, while revolving, the sheet passes under the pin points and is marked by a line of small holes.

Perforating Rule. Sharp, dotted rule, slightly higher than type; it is placed in a form and perforates lines in a sheet to permit easy tearing off where desired, as in check books. The printing of perforating rules with the type form is done only on cheap grades of work, as it saves an extra operation, and the rule, being inked with the rest of the form, leaves a black, unsightly mark on the sheet. There is also the liability of spoiling the inking rollers with this sharp high face. A more satisfactory way is, after the printing is done, to take the rollers off the press, lock up the perforating rules by themselves in a chase, set gages in a proper position, and run the sheets through just for the perforating. Several mechanical appliances have been invented for perforating sheets while printing, to do away with the disadvantages of the rules. One consists of an arrangement whereby the perforating face drops down below the face of the type while the ink rollers are passing over, thus taking no ink, and when the printing impression is applied, the perforating line rises in its place and remains there to mark the sheet. Another style for job presses, is attached to the lower part of the platen like a gripper, and when placed in position to come between type lines of the form, is forced into the sheet while the printing impression is made.

Period. (.) A mark of punctuation. See *Punctuation Marks*.

Periodical. A publication which appears at regular periods of time; the term is commonly applied to magazines, reviews, annuals, and publications issued monthly or less often, rather than to newspapers.

Permanent Inks or Colors. Those which do not readily fade or change when exposed to light.

Persian Art. Covered by the period from about 550 B. C. to 330 B. C. Derived form of Assyrian art, but strongly influenced by the Greek.

Per Mark. A commercial sign, used in market reports, etc.

Phat Take. A take of copy in which there are many blank lines, so that it can be quickly composed. See *Fat*.

Phantom Illustration. The method of showing the details and mechanical construction of a complicated machine or other object by means of drawing a transparent envelope through which can be seen the inner parts, correctly located, and their relations and functions, as though the machine were built of glass. Since the first phantom illustration was made in 1887, by Edward E. Bartlett, now president of the Bartlett-Orr Press, there have been many developments and improvements in this style of illustration. See *Ghost Picture*.

Phase. A term used with reference to alternating current circuits in electrical machinery. An alternating current generator or motor may have one, two, or three separate and distinct windings, each of which is called a *phase*. A single phase generator or motor has one such winding and is supplied by two wires; a two-phase machine has two such windings and is supplied by four wires (the two windings may or may not be inter-connected); a three-phase machine has three separate windings, which are always inter-connected, and is supplied by three wires.

Phonography. Writing by sound; shorthand.

Phonotype. Printing with characters representing the sounds of the voice, the idea being to use for each elementary sound a special letter which represents that sound and nothing else; phonetic printing. There have been many schemes and special characters devised from time to time, but none of them have been employed to any extent.

Photo-aquatint. An engraving made by the photo-chemical process, the result being an intaglio copperplate from which impressions similar to photogravures may be made; a print made by this method.

Photo-chromo. A colored picture produced by plates engraved by photo-mechanical means. See *Three-Color Process*.

Photo-Engraving. The process of making, by means of the chemical action of light upon a film, engraved blocks for printing. The term may be meant for intaglio as well as relief work, but it is in this country usually applied to relief plates such as halftones, mezzographs, and zinc etchings. The intaglio plate is more commonly known as photo-aquatint, etc.

Photogravure. A print and also the process of making a print from an intaglio engraving. There are numerous variations in the process as carried on by different operators, but the general method is by chemically treating a gelatine, albumen, or asphaltum film on a metal plate; this is next printed with a photographic positive, the action of the light making a relief copy of the original on the film. The other portions are then washed away and the plate etched with acid. There are no sharp, incised lines, but minute depressions; the deep parts, into which ink is deposited, making the shadows, and the shallow parts, holding very little ink, producing the lighter tones of the picture. Impressions are made in the same manner as from steel and copperplate engravings, the work being slow and expensive, so that printing done by this method is limited to art subjects, portraits, and fine book illustrations. Varieties of photogravures are known as Albertypes, Woodburytypes, artotypes, collotypes, heliotypes, rotogravures, etc.

Photogravure Paper. An English-finished book paper suitable for photogravure printing.sm

Photolithography. When the design is put on the lithographic stone by photography instead of being drawn on by hand or mechanically. See *Lithography*.

Photographic Paper. A paper for sensitizing; strong to withstand handling when water-soaked; used for photographic printing purposes.

Photo-mechanical. Pertaining to printing surfaces made by photographic and mechanical means; photo-engraving; phototype.

Photometer. An instrument for measuring the intensity of light, or more especially, for comparing the intensity of different lights, or their relative illuminating power; an instrument to test pigments, paper, and other materials that reflect light rather than produce it.

Photo-micrographs. Photographs made of microscopic objects, used in research work and in the study of medicine, bacteriology, chemistry, mineralogy, metallography, etc.

Photostat Machine. The photostat is a photographic machine which makes a negative directly on a piece of sensitized paper, instead of on a glass plate or film, developing and fixing the paper negative inside of the machine in from one to five minutes, and without the need of a dark room. The photostatic negative is made on a dark gray ground, with the original blacks showing white, so that a positive of the negative would revert to the original form.

Photostat Paper. A gelatine-sized paper for reproducing the facsimiles which are obtained by the photostat machine; it has characteristics similar to photographic paper.

Photo-typography. See *Photo-Composing Machine*.

Photo-zincography. The process of making a relief engraving on a zinc plate, somewhat in the same manner as photo-lithography; a photo-etching on zinc.

Phytoglyphy. A process of engraving in which a design of leaves, mosses, grasses, feathers, textiles, laces, and the like, is made on the printing plate directly from the nature objects, as by heavy pressure.

Pi. Type mixed and in confusion. A squabble is when a page or paragraph has been twisted out of shape.

Pica. A size of type equal to 12-point. It is the standard of measurement for leads, rules, furniture, and also for width and length of pages. Six picas equal, approximately, a linear inch.

Pick. (a) A spot made by filling in the hollow parts or counters of type or plates. (b) Said of ink when it sticks to paper and picks off bits of the surface while the impression is being made.

Pickle. A weak acid used to clean out old electros, engravings, etc.

Pick for Sorts. When the case is empty, to take letters from standing matter, whether live or not, to use for jobs in hand; a common practice, and sometimes necessary, but mostly due to bad management of the composing room in not keeping dead matter promptly distributed.

Pick-up. When a line, heading, or other matter can be taken out of a dead form and used over again, it is a pick-up.

Piece Fraction. That which is made of two or more types. Regular piece fractions are cast in bodies half the size of the type for which they are to be used. See *Fractions*.

Pieced Brace. Three sections (— ^ —) which may be extended to any length longer by adding dashes (— — ^ — —). See *Braces*.

Pieced Leads. When the required length of lead for a wide measure is not at hand, two or more shorter lengths may be put together; thus, ten-em leads and nineteen-em leads may be used to lead a twenty-nine-em paragraph. Brass rules are also used in pieced lengths.

Piece Work. That which is paid for according to the amount of work performed, as distinguished from time work, which is paid for usually by the hour. Composition, when paid for by piece, is measured by the number of ems set, the price being fixed as so much per 1,000 ems. On daily newspapers and periodicals, and in many book rooms, piece work is the rule, as there is much work of a uniform style and a fixed price for a given product may be agreed upon. In job offices and places where there is a constantly varying run of work and the workmen are required to do many different things, time work is the most satisfactory basis of compensation. Time work in American printing establishments is now based on the hour, and workmen are required to make a record of all time spent on each job.

Piece Root Sign. See *Root Sign*, under *Signs*, *Mathematical*.

Pieced. In bookbinding, the space between bands, where the lettering or title is placed, has a piece of leather different from the back, it is said to be pieced or titled.

Pi-ing. The act of mixing type in confusion; accidentally pushing words or lines of type apart so that they fall off their feet and become scattered.

Pigeon-holed. When extra-wide spacing is put between words and the white spaces are noticeable in a page, it is said to be pigeon-holed; it is evidence of bad workmanship.

Pigment. Any substance which can be used by makers of paint or ink to produce color when mixed with the proper oil, varnish, or other vehicle.

Pin Mark. The little mark on the side of foundry-cast type; it is on the upper part and is commonly circular in shape, the circle often

enclosing figures denoting the size of the type in points. The American Type Founders Company used a pin mark of this style (O) to mark types that have faces cast on its point-lining system.

Plain Rule. Brass rule with plain, straight lines, as distinguished from dotted and ornamental rule.

Planer. The smooth-faced block of wood used to level the face of a form. See *Proof Planer*.

Planigraph. An instrument for reducing or enlarging drawings.

Planography. This word is now used as a substitute for zincography and aluminography. It refers to methods of printing from flat surfaces other than stone. Much printing is now done by the planographic method, using zinc or aluminum, by which the impression is offset from a rubber surface to the paper. See *Rubber Offset Process*.

Planimeter. An instrument for measuring the area of any plane figure, however irregular, by passing a tracer around the bounding line; a platometer.

Plant. The fixtures, machinery, tools, apparatus, etc., necessary to carry on any trade or mechanical operation or process. This term is now often applied to printing establishments.

Plastic type. A halftone engraving of a clay modeled design. The copy for an engraving of this style may be modeled or carved, or it may be drawn or painted flat so as to give the effect of raised lettering or other design. An electro of a type form or a high relief engraving may be photographed and a similar effect produced.

Plaster Process. A method of making stereotype plates by the use of plaster. A mold of the type page is made by pouring over it a mixture of plaster-of-paris; this mold, when baked entirely dry, is filled with fluid type metal. A process now rarely used.

Plaster Mold. A matrix made of plaster-of-paris, gypsum, or some similar substance.

Plate. (a) A duplicate, in one piece of metal, of the face of composed types, woodcuts, etc. Such plates are made by electrotype or stereotype process. (b) A piece of metal engraved for impression on paper, etc., like a book plate, card plate. (c) A print made from an engraved plate.

Plate Cylinder. The cylinder which carries the form in the shape of curved plates on a rotary press, in distinction from the impression cylinder.

Plate-glazed Paper. A smooth finish made on paper by running it through the smooth rolls of a supercalendering machine.

Plate-glazed Paper. Paper glazed by being placed between zinc and copper plates, which are then passed through steel rollers under great pressure.

Plated Paper. Made of new and old rags, together with clay; has good printing qualities for copper engravings, etchings, and photo-gravures; quite permanent, but not strong. There is a great difference in finish between two sides of the sheet; it is usually unsized and not adapted for writing on with fluid ink.

Plate Printer. One who prints from intaglio, copper or steel plates. See *Copperplate Engraving*, etc.

Plate Matter. Reading matter for newspapers and periodicals cast in stereotype plates and sold to be used by several publishers in different places at practically the same time. The American press Association, which has branches in many large cities, furnishes plate matter of stories, household and fashion notes, anecdotes, etc., as well as special articles on timely topics and current news. This is in stereotype plates for newspaper columns and the plates are made to fit on special bases which lock up with regular type forms. It is an economical method of publishing, as plates for different publishers are made from one typesetting, thus making the cost of each plate comparatively small.

Platen. The flat part of the press facing the bed; that which presses the sheets on the face of the type.

Platen Press. That style of press which gives the impression from a flat surface, in distinction from the type which produces the impression by means of a curved or cylindrical surface. The earliest known presses were platen presses. The old wooden screw press, the Blaeu Hand Press, the Washington Hand Press, the Adams Power Press, and in modern days the various makes of small job presses are platen presses. The essential parts of a platen press are: the frame which carries the form or printing surface; the platen which carries the tympan, receives the sheet, takes it up to the face of the form, and makes the impression; the side arms which in combination of the back and front shaft form the strong parallelogram which holds the parts giving the impression, the driving gear and the cranks which furnish the motion and power for the impression; the rollers; the distributing surface for the ink, which is either a disk with a rotating motion or a cylinder, in which latter case there are additional rollers for breaking up the ink, called distributors; the fountain for containing and supplying the ink as needed. The impression principle of the platen press varies. The Adams press and the early models of the Peerless press used the so-called toggle-joint motion for raising the bed and giving the impression. Platen presses are made in sizes ranging from 5 x 8 inches in the Pearl to 14 x 22 in the Laureate Press, and 14½ x 22 in the Chandler & Price, and National Presses. There are of course, special sizes and special kinds of platen presses which are used for other purposes than relief or letterpress printing, such as embossing, hat-tip printing, die-ing out of paper boxes and advertising novelties, inking-in book covers, gold stamping on book covers, etc. The maximum size of platen presses is about 24 x 36 inches.

Playing Cards. Cards for games are one of the oldest forms of printing, and were printed from engraved blocks and probably by stencils before the invention of typography. The manufacture of the regular "deck" of playing cards is one of the most highly specialized lines in the printing trade, and is carried on chiefly by only a few firms.

Plumbago. See *Graphite*.

Plus Mark. (+) The sign of addition.

Ply. In paper-making, the sheets used to build up a sheet of card-board, the sheets of paper being pasted together to make two-ply, three-ply, and thicker.

Point. A mark of punctuation; also the modern unit of type measurement. See *Point System, Sizes of Type*.

Poetry. In setting poetry, the lines should be indented so as to make the stanzas appear in the middle of the page. This is not difficult to do when the lines are somewhat of an equal length, but in poems which have lines of greatly varying lengths it requires some calculation in order to secure this result without going over the matter a second time. If there is only an occasional long line it may be necessary to put it a little out of the center in order to make all the stanzas keep their place on the page. In the indention of lines of poetry, quads of even ems should be used, in order to secure uniform alignment of the beginning of lines, and the odd spaces needed for justification should be put after the last word in the line. It is customary to indent alike the lines which rhyme with each other, but this is often decided by the author, as is likewise the indention of irregular or unusual forms of verse. The punctuation by the author should also be followed, even if it does seem unusual; and particular care should be exercised in reading copy to observe the use of uncommon words, or the uncommon use of familiar words, which writers of poetry will often employ. Where quote-marks are used in poetry it is better, when they are at the beginning of a line, to place inverted the commas outside the alignment of the first letters:

He sat upon the deck,
The book was in his hand;
"Do not fear! Heaven is as near,"
He said, "by water as by land!"

The three-to-em space is sufficient blank to put between words in poetry set solid or single-leaded; when the lines are opened with two or three leads the en-quad space is needed. An old-time rule in many printing houses was to space all poetry with en-quads or double spaces. In solid lines, this wide-spacing gives a pigeon-holed appearance that is not pleasing, as may be noted in the following stanza:

Blessings on thee, little man,
Barefoot boy, with cheek of tan!
With thy turned up pantaloons,
And thy merry whistled tunes.

When a line of poetry is too long to come into measure, it is turned over to the next line, the part thus turned over being indented so as to avoid confusing it with the beginning of the regular lines.

The pressfeeder stands while deftly his hands

Pass the sheets gently one by one from the
lift to the gages.

As the sheet gently slides down the board to
the guides,

He is thus by his skill daily earning his wages.

When space is scant and it is desired to avoid an extra type line this turned-over end is often put on the end of the line before or after, as seen in church hymnals.

A song of the Press, the Printing-Press!

Of the good old-fashioned kind,

Ere the giant machine, with its pulse of

Elbows it out of mind. [steam,

Poco Proof Presses. Poco presses are made in three sizes and in each size the principle of cylinder and reciprocating bed impression is used. The bed, driven by the cylinder through means of a rack and gear, passes beneath the cylinder in making its impression, and the form or galley is removed from the bed after the impression, at the opposite side of the cylinder, unless another proof is desired from the same form. In this case the form is re-inked, a proof sheet laid on the form and the bed returned to its original position. All models have their ink plates suspended directly above the cylinder for the convenience of the operator, and are provided with means for adjusting the impression. Cylinders may be dressed as desired for hard or soft packing. Especially designed stands of convenient height may be had to support Poco presses. Every stand has a metal-lined compartment for storage of rags, ink, and gasoline, etc. Sizes: 12 x 18 inches; 13 x 25; and 18 x 25 inches. The presses have ball-bearings on the cylinder shaft and spring shock absorbers at the end of every stroke.

Pointed Letter. Another name for Black-letter.

Point of Balance. The point, unindicated in the finished design, upon which the various attractions of the design are balanced in appearance.

Points. Pieces of steel placed in the furniture of book forms to mark the sheets as a guide in folding; they are also used on some presses for securing exact register. "Feeding to points" is to place the sheets (in printing or in feeding to a folding machine) so that the points on the machine will fit into the point-holes made at the first printing. This is done where good register cannot be obtained by feeding the edge of the sheets to side guides, as with uneven or deckle edges.

Point-feed. Feeding sheets to be printed the second time onto points for exact register.

Point Holes. The holes made by press points. Point holes were used as the means of registering on the early machine presses, such as the Adams, and also on the early cylinders.

Point-set. When all the characters of a type font are cast on bodies whose widths are some multiple of a point they are said to be point-set.

Point System. Formerly there was no uniform standard of type sizes, although most foundries made types in a certain relative proportion which entitled them to be called by certain names. But as each foundry had a standard of its own, the printer who bought type from different foundries had no assurance that the type bodies of one founder would exactly match that of the same name from another. The sizes of types now cast by American typefounders are graduated on a uniform scale known as the point system. The unit of the system is a division of space called a point (.013837 of an inch), and all type bodies are multiples of and are measured by it. Each size is described by its number of points. Every character and space in a font of type has a definite width of "set," so that types are cast as exact in their widths as in their bodies. The typefounder established the width of each character in a font at the first casting, and this width is maintained in all subsequent castings.

Polished Buckram. Uniformly colored fabric of tensile strength, to which decorations are easily applied.

Pole-drying. Same as *Loft-drying*, which see.

Pony Cylinder. A term usually applied to cylinder presses that are smaller than 25 x 38 inches.

Polytype. A name given to types which were cast together in one line and the letters then cut apart; an impractical and discarded method of type-making. The word has been applied to a stereotype process and to a method of making logotypes.

Polyglot. A book printed in several languages, in order to unite various versions for the purpose of comparison. Since the early days of typography the Bible has been made in polyglot editions, all of them representing a high degree of scholarly and mechanical skill and immense expenditure of time and money. A visit to a library and an examination of some of those polyglot books will be of interest to anyone interested in printing.

Pop Test. A test of the bursting strength of paper while under pressure, usually made with a Mullen tester. It is often called the Mullen test.

Positive. In photography, corresponding with the original in the relation of lights and shades; a positive picture is the opposite of a negative.

Post. A size of writing paper; in England $15\frac{1}{4} \times 19$ inches; in America it is 17×22 , or folio post, but the name post is discarded and it is simply folio.

Post Card. A private mailing card (or post pard) with a written or printed message, to be sent in the domestic mails, must conform to the following conditions: It must be an unfolded piece of card not exceeding $3\frac{3}{16} \times 5\frac{5}{16}$, nor less than $2\frac{3}{4} \times 4$ inches; it must be in form and in quality and weight of paper substantially like that of the government postal card; it may be of any color not interfering with a legible address and postmark; it may or may not, at the option of the sender, bear near the top of the face the words "Post Card"; face of card may be divided by a vertical line; left half to be used for message, etc., but right half is for address only; very thin sheets of paper which bear both writing and printing may be attached to the card, but must completely adhere thereto; advertisements and illustrations may appear on back of card and on left half of face. Cards, without cover, conforming to foregoing regulations are transmissible in domestic mails (including the possessions of the United States), and to Canada, Cuba, Mexico, Republic of Panama, and the United States postal agency of Shanghai, China, at the postage rate of two cents each. The rate on all post cards is two cents each, whether they bear written or printed matter. This rate will also apply to each portion of double or reply post cards. The postage on the reply half need not be affixed thereto until it is detached and mailed for return. This includes all cards within the size for post cards, whether they do or do not bear the words "Post Card" or "Private Mailing Card." Cards bearing these words, even though not within the size for post cards, will be chargeable with two cents postage each if in print or if the letter is wholly or partly in writing. When post cards are prepared by printers and stationers for sale, it is desirable that they bear in the upper right-hand corner of the face an oblong diagram containing the words "Place postage stamp here," and at the bottom of the space to the right of the vertical dividing line, "This space for the address." Cards which do not conform to prescribed conditions are, when sent in the mails, chargeable with postage according to the character of the message—at the letter rate (two cents per ounce or fraction) if wholly or partly in writing, or at the third-class rate ($1\frac{1}{2}$ cents per two ounces or fraction thereof) if entirely in print. Cards bearing particles of glass, metal, mica, sand, tinsel, or other similar substances, are unmailable, except when enclosed in envelopes tightly sealed to prevent such particles from being rubbed off or injuring persons handling the mails. Cards mailed under cover of sealed envelopes (transparent or otherwise), are chargeable with postage at the first-class rate; if enclosed in unsealed envelopes they are subject to postage at first-class rate if wholly or partly in writing—to be prepaid with stamps affixed to envelopes—or at the third-class rate if entirely in print. Stamps affixed to matter enclosed in envelopes are not recognized in payment of postage thereon. The rate of all matter embraced in the third-

class will be one and one-half cents for each two ounces or fraction thereof up to and including eight ounces in weight, except that the rate on books, catalogs, etc., shall continue to be one cent for each two ounces on parcels not exceeding eight ounces in weight. The present fourth-class pound rates according to distance or zone will apply to all matter weighing more than eight ounces, except that of the first and second classes, and in addition thereto there will be a service charge of two cents for each parcel. Under the new rates, the advertising matter will be charged as follows: 1st zone, 2 cents per pound; 2nd zone, 2 cents; 3rd zone, 3 cents; 4th zone, 6 cents; 5th zone, 6 cents; 6th zone, 6 cents; 7th zone, 9 cents; 8th zone, 9 cents.

Postage Stamps. The methods of making postage stamps have changed very greatly since they were first issued in England in 1840. The early stamps were engraved by hand upon copper plates from which the impressions were taken. The engraving of a number of stamps on one plate, in order to print several at one impression, was slow and expensive work. Later the stamp design was engraved on steel and the common stamps of today are real steel engravings. The first step is to engrave the portrait in deep intaglio on steel which has been softened by a special process of decarbonization. Then the border of the stamp, with lettering and scroll work, is cut and the steel is hardened. This hardened die is next pressed with great force into the surface of a cylinder of softer steel, and produces the design in relief, the reverse of intaglio. This relief counterpart is in turn hardened and is used to press into another plate of softer steel, duplicating the design side by side, to make a plate from which stamps are printed. By this means of transfer any number of plates for printing may be made up with one original engraved die, insuring absolute exactness in duplicating the design, and an easy method of renewal of printing plates as they become worn or injured. The plate of dies as arranged in the press produces usually a sheet of four hundred stamps which, when finished, is cut in four and the stamps sent out to postmasters in sheets of one hundred. The general method of printing is similar to other copper and steel plate work—the ink is worked into the depressions of the die, the sheet laid on, and the impression made with a tympan which forces the sheet into the depressions to take up the ink. Hand presses are commonly used for this kind of printing, but at the Bureau of Engraving and Printing at Washington, where all United States stamps are made, power presses are used. Many details of processes in making stamps are secret, and much special machinery is used in this work exclusively. Stamps are also printed by setting separate electrotypes side by side and then recasting them together as a single solid plate. Stamps are also made by lithography. The printing of stamps by type and rules was an early and crude method, but was not satisfactory because of the ease of duplication and consequently counterfeiting. The expense and difficulty of steel engraving make stamps printed in this way less liable to be counterfeited; it also makes possible the maintenance of a uniformly high

quality in the printing of the stamp. The punching of lines of small holes, called perforating, in order to allow easy separation of stamps in a sheet, was begun about 1854; previous to this the stamps were cut with scissors, then roulette wheels were used, as well as brass and steel perforating rules.

Postal Card. The official blank card used by the Post Office Department for carrying short messages at less cost than regular letter rate (one cent for domestic, two cents for foreign). The regulation size is now $5\frac{5}{16} \times 3\frac{3}{16}$ inches. A quick and economical method of sending a notice or message through the mails to a number of persons is to print it on the back of postal cards. All printers should be familiar with the Post Office regulations relating to these cards, as well as to post cards, stamped paper, and similar matter which they will at some time or other have to deal with. A copy of these regulations may be obtained of any postmaster. A double postal card is called a reply or return postal. Such cards should be folded before mailing, and the initial half should be detached when the reply half is mailed for return.

Postal Tube. Made of card or strawboard, for mailing large prints, drawings, etc. Also called *Mailing Tube*.

Poster. A sign intended to be affixed to a wall or board to convey some public announcement. The use of such signs is probably as old as civilization itself; but with the printing press came in a class of signs more or less answering to the specific modern use of the word poster. In Paris, in the seventeenth century, posters printed on colored paper came into use, and European, and American artists have of late years developed the poster to a thing of beauty and great effectiveness. In America posters were first generally used to advertise the circus and theater; since then they have been used to advertise every sort of an announcement which the printer or his customer wished to make. Posters are printed from large wooden type, as well as from large sizes of metal type, from woodcuts, zinc-plates, linoleum blocks, and by lithography. While occasional orders for small posters may be and often are printed in offices doing general jobbing, posters are now done mostly by houses making a specialty of this class of work. In connection with poster printing, bill-posting, that is, the distributing and posting on walls or buildings, has assumed immense proportions. The regular sizes are now 28 x 42, 21 x 28, and 14 x 21 inches, which are known as full-size, half-size, and quarter-size respectively. Some posters are made on larger paper, but most large posters are now two, four, six, or eight sheets, printed separately in sections which will match each other, and put together by the bill-poster at his stands. Very large posters are simply multiples of these smaller sheets. For this large work, large types, engravings, etc., are needed; sometimes a single letter may fill the bed of a large cylinder press. A printing office doing this class of work has stock cuts, bor-

ders, etc., of large size, made mostly of wood or zinc, and regularly employed artists and engravers to make designs and cut blocks for special work.

Poster Chase. A large chase without cross-bars, in which poster forms can be locked.

Poster Paper. A general term for the grades of paper suited to poster work, generally coarser but stronger than news and common paper; also made in colors.

Poster Stamp. A small sticker or stamp, printed or lithographed on gummed paper, used for various publicity or advertising purposes.

Poster Stick. A large wooden composing stick for poster work.

Poster Type. Large type for printing posters; the larger sizes of cast metal type are used for this work, but the largest types are made of wood. See *Wood Type*.

Postscript. (a) An addition made to a book or other written or printed work after the main body has been finished. (b) A paragraph added to a letter after it has been completed and signed by the writer. Abbreviated P. S. (*Post-scriptum*—something written afterward.)

Potash. An alkali dissolved and diluted with water, used to wash type forms. See *Lye*.

Pott. An English size of writing paper, 12½ x 15 inches; 13 x 16 inches in printing paper.

Potter Offset Press. One of the first offset presses to be put upon the market was the Potter. It is now manufactured by the Harris-Seybold-Potter Company of Cleveland, Ohio. The Potter offset press is favorably known to the lithographing trade. It has special merit through the simplicity of its design and solidity of its construction. These not alone develop the highest possible operative speed, but make possible an output of great quantity of fine quality, with low production cost.

Potter Press. This proof press is made in three styles and three sizes, 12 x 25, 17 x 25, and 25 x 25 inches (printing capacity), with or without automatic inking device and feed-board attachment. The cylinder is geared to a reciprocating or movable bed, which gives a true cylinder impression. The paper for the proof may be laid direct on the form, which is the faster method, or it may be fed around the cylinder, which gives the better proof. Feed guides and grippers make possible the registering of margins and color plates. A foot-trip prevents offset on the return stroke. The automatic inking device consists of two form rollers, 2½ inches in diameter, one steel vibrator, three idlers or distributors, and one drum feed-roller (which is equivalent to a fountain), 3½ inches in diameter. The drum feed-roller moves down to contact with the vibrator once per stroke of bed with a fresh supply of ink. It is adjustable for long or short contact, according to

the amount of ink required and the amount of ink on it. Ink is laid directly on the drum feed-roller and distributed thereon by means of an idler and a small crank. All three styles of this press have a device for separating the rollers to prevent flattening when the press is standing idle.

Pound Mark. The commercial sign representing pound in weight, (lb); also the (£), denoting the pound sterling in English currency, etc. The character is derived from the Latin word *libra*, pound.

Preface. This feature, with the title page and table of contents, is the most familiar "front matter" of a book. A preface is usually a word of explanation either from the author, editor, or publisher, and it will often be advisable to put it in a style showing some distinction from the regular text pages. In the ordinary book, however, there need be little in its typographic style to distinguish it from the regular pages of the work. The same type face and same size, with the heading similar to that of the chapter heads, will be a safe style to follow. If the preface is brief, occupying a single page, the lines may be leaded wider; if it is desired to keep a lengthy preface in small space, the lines may be set solid, or a smaller size type employed. Italic letter of a style to harmonize with the rest of the book often may be used with good effect for a short preface. The selection of a type that is distinctly different from the other parts of the work is not commended; nor should prominent initials or head-pieces be used if these features are not employed in the other divisions of the book. When head-pieces and initials are employed at the beginning of chapters, they may be used for the preface, or they may be properly omitted and the prefatory page set in plain fashion.

Preliminary Matter. The title, preface, table of contents, etc., which come before the main text of a book; the front matter.

Premier Press. A two-revolution four-roller press designed and built by the Harris-Seybold-Potter Company of Cleveland, Ohio. A press covering in its product the whole range of letterpress printing, more particularly exquisite halftone work in both black and colors. Being the newest designed press of the two-revolution type, the Premier possesses every device suggested by the latest printing experiences which, joined with the high speed and exact register, unyielding impression and ample ink distribution, make a press of the highest attainable excellence.

Press. The machine or apparatus used to press the paper on the type, engraving, etc. For printing there are three distinct mechanical methods of imparting this impression. The first method is the platen press, whereby the paper is pressed with a smooth, flat surface on the flat face of the printing form. This was the principle of the first printing presses. The platen was a smooth block of wood and the impression was given by means of a screw turning in a nut fixed to the upper part of the apparatus. The bed was originally of wood also, but later it was a flat stone, and about the year 1790 iron began to be used.

(For description of the early hand presses, see *Lockwood's American Dictionary of Printing and Book-making*; also De Vinne's *Invention of Printing* (p. 527 *et seq.*) The common forms of job presses such as the Gordons, Chandler & Price, Golding, Pearl, Universal, and Colt's Armory, are platen machines. The usual sizes of these presses print forms from business-card size up to 14 x 22 inches. The second class of presses is known as the flat-bed-cylinder style. In this the impression is given by the surface of a cylinder which revolves and gives the impression while the flat bed containing the printing form passes underneath. Printing from a cylinder was first made practical about 1814 in England. (See *König Press.*) There are now many different makes of this style of press, and they are again classified in two distinct types: the drum cylinder (the older style), in which the cylinder makes one revolution while the bed moves forward for the impression and returns for the next; and the modern two-revolution style, in which a small cylinder makes one revolution for the impression and then, rising slightly, makes another revolution without impression while the bed is returning to the starting point for the next impression. The drum cylinder is large and prints with only one part of its surface, then rises slightly and continues its revolution while the bed returns for the next impression. In both kinds, the cylinder has a small opening in its surface, in which is fitted a rod with grippers that catch the sheet of paper at the proper moment and carry it around for the impression, then release the sheet when printed, so that it is carried on the receiving table by another part of the mechanism. There are many different varieties of these presses and they are employed for all classes of typographic work. The sizes range from those printing forms 22 x 28 inches up to about 48 x 72 inches. The third class of printing presses is the rotary, or those which employ a cylinder for the printing form as well as for the impressional surface. Of this style are the machines used for daily newspapers and magazines of large circulation, in which the paper is run from a continuous web or roll. The printing forms for machines of this kind are stereotypes (for newspapers) cast in curved shape, or curved electrotypes for the better grades of work. These plates are curved to fit the cylinder surface and are held in place by clamps or catches at the sides of the plates. In England the word *press* is restricted to the style of apparatus which we call the *hand press*, and the more complicated modern machine operated by power known as a machine; in this country the word *press* is applied to all machines for printing, stamping, and similar purposes.

Press Board. (*a*) A smooth board of seasoned hardwood, usually bound with a strip of brass or metal, used to press sheets of paper or bound books smooth and flat in a standing press. (*b*) Bookbinder's board, a strong glazed cardboard, much used for cylinder covers, or packing, and for platen tympan, is also called press board.

Press Counter. A small attachment for registering the number of impressions printed. It is attached where a small lever is operated at each impressional movement of the press, this lever in turn opera-

ting a number of small wheels in the interior; on these wheels are the ten figures, 1 to 0, and as the counter is operated the figures are presented in sequence at openings on the face. See *Counter*.

Press Feeder. A person who feeds sheets into a press. See *Feeder*.

Press Feeders. There are only two types of press feeders in common use, and both types, one known as the pile feeder and the other as the continuous feeder, came into active use about the same time, some twenty-five years ago. The suction Pile Feeder is the best known of this type of machine at the present time. It operates from the back of the feed-board of the press, extending to about one and one-quarter times the width of the largest sheet that the press will take, and depending upon the thickness of the stock to be fed into the press, and the height of the press itself. A full load of paper would contain, for the thicker varieties, 10,000 sheets, and on the thinner kinds on the largest presses, about 20,000 sheets. The paper is automatically separated by combers and suckers and is carried down to the front end of the press and registered by mechanical devices with much greater accuracy and at higher speed than would be possible by hand-feeding. The Continuous Type Feeder, of which the one best known in this country and abroad is the Cross, takes its name from its design which permits the loading of the feeder while the press is running. The Cross Feeder carries a total lift of some 600 or 700 sheets of paper, curved around a drum, which is automatically combed down to the front of the feeder and carried forward to the drop guides in much the same manner as with the Suction Feeder. As the paper is combed down from the upper platform of the feeder a lift of fresh paper stock of from 250 to 500 sheets may be placed in position for feeding and fanned out while both press and feeder are in operation. It would therefore be possible for a Cross Feeder attached to any type of cylinder press to operate continuously from morning until night if there were no other contingent delays. See *Feeders*.

Pressing Blocks. Wooden blocks used to fill up space in a standing press.

Pressing Boards. Hardwood boards, seven-eighths of an inch thick, put between books, sheets, etc., in pressing.

Pressman. One who operates a printing press or has charge of one. A press feeder is not usually termed a pressman unless he also makes ready and manages a press.

Press Points. See *Points*.

Press Proof. A proof made with care by putting the form on the press and making ready in one or more colors, as the work would be ultimately printed, in distinction from rough proof made by the usual methods. Also the final proof, either from type or electros, passed by author or proofreader, signifying that the work is ready for printing. See *Proof*.

Press Punch. A small device for punching holes in a sheet of paper or card at the same time that it is printed. One style is secured to the tympan of the platen press, like a feed gage, so that the edge of the sheet is fed between its two lips, one lip having a punch and the other the corresponding hole. The printing impression forces the two parts together and punches the hole in the sheet. Another style of press punch is like a large type, made of steel, and is locked in position with the type form. It punches the hole in the sheet simultaneously with the printing. This style has, inside of the round cutting edge, an ejector supported by a spiral spring which pushes out the small pieces of paper cut from the sheet, as soon as the impression is released.

Press Revise. A sheet from the form made ready on the press, to revise for final corrections, etc.

Pressroom. The department of printing establishments where presses are operated.

Presswork. This commonly includes all the operations necessary for printing, embossing, scoring, bronzing (when done on a press), and all kinds of labor which pertain to the press after it is erected and in running order. The setting up of a press is not now deemed part of a pressman's work, as it was formerly. On account of the complexity of modern machines, as well as the introduction of new devices, the erection of a press is done by a machinist conversant with the particular style of press. Presswork includes caring for rollers, ink, and paper, as well as the proper handling of the press and the form, and calls for skill in proportion to the class of printing done.

Primary Colors. In light they are green, red, and violet (or blue-violet). In printing inks or pigments, yellow, red, and blue are called primary colors.

Print. An impression from a plate, engraving, etc. A book, periodical, or other publication which is no longer in stock is said to be "out of print," although it may be obtained of second-hand dealers or others.

Printings. A printer's term to indicate various grades of book paper.

Print Paper. The common grades of unsized paper, such as used for newspapers, magazines, books, etc., as distinguished from writing paper, wrapping, etc.

Printer. One who follows the occupation of printing, either as workman or employer; nowadays a very comprehensive term, which should have some qualifying adjective, such as book printer, newspaper printer, job printer, plate printer, etc. Very inconsistently the term "printer" seems often to be applied to those who are merely compositors and have little or nothing to do with presswork or printing.

Printer's Bible. A Bible printed prior to 1702, mentioned by Rev. Cotton Mather, containing the word printers in place of princes in Psalm CXIX:161. "Printers have persecuted me without cause."

Printer's Devil. The errand boy in a printing office. See *Devil*.

Printing Ink. A mechanical combination of boiled oil and black or colored pigment, used to make visible and permanent the impression of type, engravings, etc., on paper. Printing ink is not at all like writing ink, but is more like paint, with certain qualities which are necessary for its peculiar use. It must distribute in a thin film freely and easily, and it must work sharp and clean without spreading; it must adhere to the type readily, and yet come off as readily and adhere to the paper. For many printing inks linseed oil is used, often with some rosin oil; and rosin oil alone is used for the cheaper, coarser grades. Linseed oil is prepared by boiling at a low temperature until all the moisture and volatile substances are eliminated, and for the still varnishes the greasy portion is burned out, and certain chemicals added to give the drying qualities. Ink is made by mixing certain proportions of this varnish and color pigment, the mixture varying in quantity and quality according to the nature of the pigment and the kind of ink required. Different pigments have been used for making black ink—black minerals, lampblack or soot, ivory black, and carbon black—but carbon black or gas black is now mostly used because of its superior covering quality and density. Black ink is often toned with a little blue to give it depth and richness, as the natural pigment has a reddish-brown hue. Color pigments are derived from three sources: mineral (native and artificial pigments); vegetable, and animal (native pigments, lakes, and indirect products). In the native mineral pigments, genuine ultramarine blue stands first in brilliancy of color, and although matched artificially it will never be equalled for transparency and durability. Yellow ochre, raw sienna, raw umber, and Indian red are all made of imported earths. Artificial mineral pigments are derived through chemical action, and include such colors as vermilion, artificial ultramarine blue, Chinese white, pure scarlet, emerald green. In fact, the advance in chemistry has been so rapid, that almost any pigment can be closely duplicated by artificial means. Gamboge, a gum from a tree in Ceylon; indigo, from the leaves of the indigo plant; and yellow lake, from the quercitron bark, are some of the pigments from the vegetable kingdom. Indian yellow, a deposit from the urine of the camel; sepia, a secretion of the cuttle-fish; carmine, made by crushing the cochineal insect; and indirectly, lampblack, the soot of burning vegetable oils, are products of the animal kingdom. Not all pigments are suited for printing-ink manufacture. Many of them, while extremely useful in other ways, do not possess the chemical properties for combining with varnish and producing the clear, even impression that ink must possess. Covering power is one of the most, if not the most, important property of a pigment. In comparing samples of different makes of the same color, that sample which shows the strongest covering powers is considered the best,

other qualities being equal. Covering powers vary greatly in different pigments. Some pigments are recognized as being transparent and are used as such. Carmine, lakes, ultramarines, etc., belong to this class. Coloring power is not infrequently confused with covering power, but it is a distinctly different property from the latter. For example, a color may possess great coloring power and yet be deficient in covering power. To illustrate: Prussian blue is one of the most powerful coloring pigments known to the color world, yet in body it is almost transparent. This color and others of the same characteristics are therefore chiefly dealt with from the point of coloring power. In making ink, great care must be taken as to the order in which the different ingredients are added. Some colors must be ground hot, some fast, and some slowly, and the skill of doing these constitutes a good part of the formula. The kind of paper stock used should determine the grade of ink. Heavy, rough, colored papers need entirely different ink from smooth, white paper, and require opaque colors—that is, ink made from such pigments as do not allow the color of the stock to show through them and transmit this color into their own. A transparent red printed on a green stock turns brown, but an opaque cover ink retains its own color because it is so dense that no light is able to penetrate through it. Cover inks should be of a heavy body and so full of color that one pound will have almost enough color in it to make two pounds of ordinary transparent ink. Great care is used in selecting the pigments for these inks, and only those are used which are known to have great covering capacity. Ink for enamel-coated papers is of an entirely different nature, and must be made according to the surface of the paper.

Printing Ink and Paper. The following is a list of paper stock, with a list of inks, reducers, and driers best suited for each kind of paper:

Material or paper	Ink	Reducer	Drier
Blotting	halftone	soft halftone	boiled oil
Book (m. f.)	book ink	boiled oil	boiled oil
Book (s. and s. c.)	book or job	soft halftone	boiled oil
Book (eggshell)	book or job	soft halftone	boiled oil
Bond, hard linen, etc.	bond or cover	job ink	paste
Bristol board	job or bond	halftone ink	paste
Cover (s. and s. c.)	job	soft halftone	paste
Cover (enameled)	halftone	soft halftone	paste
Cover (eggshell)	job	halftone ink	paste
Cover (all hard papers)	cover ink	job ink	paste
All colored papers	cover ink	job or bond ink	paste
Envelopes (soft paper)	job ink	halftone ink	boiled oil
Envelopes (hard paper)	cover ink	job or bond ink	paste
Cardboard (plain)	job ink	halftone ink	boiled oil
Cardboard (coated)	halftone ink	soft halftone ink	boiled oil
Gummed Paper (glazed)	halftone ink	soft halftone ink	boiled oil
Gummed Paper (ordinary)	job ink	halftone ink	boiled oil

Cut cards	cover or bond	job ink	paste
Ledger	cover ink	bond or job ink	paste
Flat Writing	job ink	halftone ink	paste
Manila	job ink	halftone ink	paste
Print or news	news or book	kerosene	none
Parchment or vellum	cover or bond	job ink	paste
Shipping tags	job ink	halftone ink	paste
Wax paper	cover or bond	halftone ink	paste
Tissue paper	job ink	halftone ink	paste
French folio	job ink	halftone ink	boiled oil
Pressboard	cover ink	job ink	paste
Cloth covered paper	cover ink	job ink	paste
Celluloid	cover ink	none required	paste
Aluminum	cover ink	none required	paste
Tin and zinc	cover ink	none required	paste
Wood	job ink	halftone ink	boiled oil
Silk	bond ink	job ink	paste
Linen	cover or bond	none required	paste
Leather or kid	halftone ink	halftone ink	boiled oil
Cotton fabrics, etc.	halftone ink	halftone ink	paste
Dull finish	dull finish ink	soft halftone ink	paste

It has been found by experimentation that a pound of good grade of black will cover approximately one hundred square inches of surface on a thousand sheets; a pound of blue will cover ninety square inches; a pound of red, eighty square inches; a pound of yellow, seventy square inches; a pound of white or body tint, but sixty square inches. Where one color overlaps another the amount of ink required is relatively but two-thirds of the quantity required to cover a clean or unprinted surface. A rough stock will require two or three times as much ink as a smooth or coated stock will take. In some offices it is the custom of the estimator to add 5 per cent to the cost of the job for ink used if the ink be black, and 10 per cent for colored inks.

Printer's Device. Same as printer's mark. See below.

Printer's Marks. Emblems or devices used by printers on their work, serving the purpose of trade-marks. Among the early printers these devices were common, and these are now of considerable interest and significance. The printer's mark evolved from a small monogram to an elaborate picture occupying from a quarter to a whole page. By the end of the fifteenth century it was rapidly assuming an importance of which its original introducers had little conception, and in 1539 according to DuPont in his "Histoire de l'Imprimerie" a law was passed to protect the marks of printers and booksellers. The first printer's mark was used by Fust and Schoeffer in the colophon of the famous Psalter printed by them at Mainz in 1457. It is the third book printed and the first to have a date. The device of Fust and Schoeffer is now used by the International Association of Printing House Craftsmen for their emblem. Many modern printers and printing firms use devices as imprints. See *Imprints*.

Printer's Oblong. A rectangle in which the diagonal line from one corner is twice the length of the shortest side. This is approximately the shape of the usual book page, and is a pleasing proportion either as an upright or a "broad" page. The ratio of width to length in the printer's oblong is as 57.73 is to 100.

Printer's Ream. In England, 516 sheets.

Priory Text. A style of black-letter or old English based on early manuscript and printed work. It has many variations and is called by other names. See *Old English*.

Process Engraving. The general term applied to printing surfaces produced by chemical and mechanical means; more especially the photo-mechanical processes by which zinc etchings, halftones, etc., are produced. The relief etching, or process block, is the simplest and cheapest method of making an engraving. By this process the metal, usually zinc, is eaten away with acid in the white spaces of the design, the printing lines and dots being protected by a composition which resists the action of the acid. The design may be drawn by hand or transferred from another surface, but the more common method is by photographic process, as follows: The thin, polished zinc or copper plate, coated with a solution of fish glue or albumen mixed with bichromates, is exposed to light under a reversed photographic negative of the picture or design, which changes the nature of the coating where light hits it. The plate is then washed with water, which removes the unchanged part of the coating, leaving the lines of the picture in hardened glue or albumen. It is then heated until the glue is "burnt in" or until it has assumed a dark brown color. This forms an acid resist, and the plate is now etched with acid. After the large blank spaces are cut out a little deeper, the plate is trimmed and mounted type-high. See *Routing* and *Blocking*. Zinc etching is the process of engraving commonly used for newspapers and for ordinary grades of periodical work. The copy for reproduction is usually drawn with a pen on white paper or card, with perfectly black ink, and all the degrees of light and shade must be produced by dots and lines of varying widths and distances apart. Photographs, wash-drawings, and fine-grained or tinted pictures must have their essential parts translated into distinct lines in order to be engraved by this method. Halftone engraving is done practically by the same methods as zinc etching, the difference being that, in photographing, a screen is interposed between the sensitive plate in the camera and picture or design. This screen is placed near the plate, and, the light passing through it, the object on the negative is broken up into a mass of small squares, or dots, which are larger or smaller as the corresponding parts of the copy are darker or lighter. This screen negative is then placed beside a polished and sensitized copper (sometimes zinc) plate, and after exposure to light, the plate is developed and manipulated so as to protect the dots on its surface from the action of the acid with which it

is afterwards etched. In the case of a copper plate, a solution of perchloride of iron is used. The plate is then trimmed and mounted, as for a zinc plate. The halftone screen varies in fineness from 65 to 400 lines to an inch, according to the coarseness or fineness of the plate required, this being determined by the finish of the paper to be used and care with which it may be printed. The coarse screen is best suited for the rapid work and cheaper paper of a daily newspaper, while a screen of 125 to 300 lines, on smooth, coated papers, printed on slow presses, gives finer results in the picture. The finer the screen used, the shallower the plate can be etched, and smooth paper and fine ink must be used in order to print it clearly without blurring.

Process Printing. The method of printing with process inks and plates. See *Process Inks*.

Process Inks. Special inks for doing three-color process work. These inks are made in yellow, red, and blue, and a variety of hues of these three colors. By proper mixing almost any result can be obtained. Because of the fact that the three fundamental colors cannot produce a black or a gray shadow, a fourth color is sometimes resorted to. This is a grayish black. When printing a four-color process picture, the yellow, red, black, and blue are usually printed in the order named.

Program. An outline or explanation of a performance, concert, ceremony, etc., usually giving the names of the performers, or actors. Programs are generally printed on paper that is soft and free from rattle.

Progressive Proofs. In color-process work, the photo-engraver furnishes progressive proofs of the color plates to the printer as a guide. These proofs are made in progressive order with process inks on a highly coated, smooth paper, one or two proofs of the yellow plate, one or two of the blue plate, etc. The plates are usually double-rolled and the impression is taken on a hand-lever press like the Washington.

Proof. After types are set their correctness must be verified before they are ready to be printed. For this purpose a trial impression is taken, in order that the composition may be examined and needed corrections made. This trial impression is the printer's proof, and the time and care given to it is a matter of very great importance in every printing room. By any of the usual methods employed in taking proofs, the first operation, after the type is secured so that it will stand squarely on its feet, is to roll ink on its face; then a sheet of paper is laid on and impressed so as to take a transfer of the ink. This impression may be made: First—By pounding carefully on the type with a flat-faced, felt-covered block called a proof planer. Second—By placing the type on a proof press, where the impression is made by moving over it a heavy roller or cylinder covered with cloth or felt. Third—By placing the type on a hand press. Here the type is inked, the sheet laid on, then the tympan turned down, the bed run under the platen, and the bar pulled over. To "pull a proof" is to take it by the latter method,

but the term is commonly meant to take a proof by any method. In many cases a number of successive proofs may be taken from the same page of type during its preparation for the final printing; and in book-printing houses these several proofs may be taken at different stages by all three of the above methods. When the compositor finishes his work of setting the lines and they are locked in the galley, or tied with a cord, and the *first proof* is usually taken on a proof press. After this proof has been examined by the proofreader and the necessary corrections made in the metal, another proof is taken. If there are many changes, or the work calls for extra care, other proofs may be required. A revise proof is one that is taken after correcting the type, to see that all corrections marked on the previous proof have been properly made and that no new errors have crept in. After the galley matter is corrected and made up into pages, with headings, page numbers, notes, etc., the pages are tied up with strong strings, arranged in opposing pairs, that is, with an even-numbered page at the left hand and its succeeding odd-numbered page at the right hand, and are again proved on a hand press. Possibly the pages may need several revisions and other proofs at this stage; or, if they are to be electrotyped, guard-lines are placed around each page and they are locked in foundry chases (in pairs, if they are pages of ordinary size) and *foundry proofs* are pulled. The final proofs are taken when the pages are imposed and locked in the chase, ready for the press. At this stage the form of eight, twelve, or more book pages is too large for the hand press, and in order to avoid loss of time on the large printing press, while waiting for final revision, a proof is taken by beating with the proof planer. See *Proof Planer*. A good quality of moderately stiff ink should be used for taking proofs; to use a cheap, thin, or oily ink is not satisfactory and in the end is the most expensive. If the ink is to stay on the roller and ink-slab all day, a quick-drying ink should be avoided. Use the smallest quantity of ink necessary to get a distinct impression, and distribute it thoroughly on the ink-slab. If the roller has too much ink, a muddy proof will be the result. A gray proof is preferable to a smutty one, or one that the proofreader cannot handle without rubbing it dirty. A proof with too much ink or too much impression makes difficult the detection of bad letters. To take off any surplus ink that may have been needed for a previous form, run the roller slowly over a sheet of waste paper. The paper used for proofs should not be of the poorest quality. Book paper with a reasonably smooth surface will suffice for office proofs and galley proofs. Hand-press proofs from made-up pages, intended for the author or customer, should be made on good paper of clear color, and strong enough to bear handling. Coated paper is sometimes used for special proofs in which engravings of fine lines occur. Each proof sheet should have a white margin of an inch or more on the sides, to permit of marking corrections by the proofreader. A number of pages or galleys, or a succession of proofs of the same work, should be made on sheets of the same size if possible, of the same grade of stock. Proofs taken on odd scraps of paper of different sizes make trouble

for the proofreader and the foreman, and cause a confusion and liability to error in keeping track of the work. A supply of proof paper, cut in the several sizes frequently used, and kept in a convenient place, is the only satisfactory method of securing neat and orderly proofs.

Proof Paper. Paper used for making proofs; proving paper.

Proof Planer. A block of hard wood about $7 \times 3\frac{1}{2} \times 2$ inches thick, having its face covered with a piece of felt or thick cloth, used to take proofs. The type is inked and a sheet of proof paper is dampened evenly all over with a sponge, so that it is limp but not too wet. The side of the sheet that is not sponged is then laid on the type; the proof planer, held in one hand, is carefully placed on the sheet with cloth side down, and with a mallet in the other hand the planer is hit with a steady blow to press the paper on the type. Some care and practice are needed to get just the right quantity of ink on the type, the right degree of dampness in the sheet, and the right kind of blow on the back of the planer to produce a clear impression. If the page or galley matter is too large for the planer to cover at one blow, the pounding is started near the top of the matter and as each blow is struck the planer is moved over the surface until the whole has received the impression. Care must be taken to hold the planer steady on the type, and to hit the planer so that the force of the blow will be exactly perpendicular, otherwise the least disturbance of the sheet sideways will result in a slurred proof. The planer must be held firmly and perfectly level, and not allowed to slip sideways or rebound. With a large mallet a steadier blow may sometimes be given by holding the mallet head upright and hitting the end with the handle. Special care should be taken not to beat the planer too hard on open parts of a form or on exposed lines, where even a slight blow will break through the paper and also batter the types.

Proof Print. An early impression of an engraving, taken with more care than an ordinary proof.

Proof Presses. Small and medium-sized presses, operated either by hand or electrical power, for the making of proofs of type or other relief surfaces. There are many different sizes and styles in existence. These presses will take sheets ranging in width from five inches up to about 36 inches, the narrow presses being long, the wider ones almost square in dimension. A proof press (also called hand press) has either a moving bed and a stationary cylinder (or roller), or a rigid bed and a moving cylinder. The common roller press has an iron or steel frame upon which is mounted an oblong, flat bed, also of metal. On two sides of this bed are ledges upon which a metal cylinder, having its face covered with thick, strong cloth or felt, and sometimes a rubber blanket, may be moved back and forth. This press is adapted for taking proofs of long galley matter. When the galley of type is placed on the bed, and the type has been inked with a hand roller or brayer, a strip of paper is laid on and the cylinder moved over to give the impression. Thin dry paper may be used for small forms, or even for

galley proofs, but when thick paper is used that which is slightly dampened will produce the best proofs. The cylinder and the ledges upon which it rests are adjusted so that it gives the right impression with the galley under the type. In the absence of a galley, as when a page is made up and tied with a string, a sheet of metal or thick mill-board is placed under the type to bring it to the required height. Differences in the height of type, caused by varying thicknesses of galley bottoms, are regulated by adding sheets of paper or cardboard on top of the proof sheet or under the type or galley. Careful attention to the impression is necessary on a proof press of this style. A heavier impression than is needed is liable to ruin type and engravings. In newspaper composing rooms galley proofs are taken on presses of the roller style, with the additional improvement that the type is inked and the paper fed from a roll automatically, the needed apparatus being attached to a carriage that moves back and forth with the cylinder that gives the impression. By this arrangement the only labor necessary is to place the galley of type on the bed and move the roller carriage over by means of a crank. Many of these presses are equipped with electric motors which provide the motive power to run the cylinder back and forth over the type galley. In composing rooms where it is customary to make first proofs of each galley, one on white paper and another on colored paper, the latter to be used for measuring up the composition, the *double web proof press* is used. This press has two paper rolls fixed on the top of the press, side by side, and after the galley is proved on one paper it is moved opposite the other roll and another proof is taken on colored paper. This style of press can also be used for taking proofs of two galleys at one time. See *Composing Room Cylinder*, *Hand Press*, *Brower Presses*, *Poco Presses*, *Vandercook Presses*, *Potter Presses*.

Proof Puller. The person, usually a boy, whose duty it is to take proofs at the press in a newspaper or book office employing a number of hands.

Proofreader. One who reads proofs. The work of a proofreader is to read the proof sheets and mark any needed corrections with pen or pencil. Incidentally there may be other duties assigned to him, such as collecting and arranging copy, revising proofs to see that corrections have been properly made, taking care of copy after it has been used, until the work is completed and copy is bundled up for preservation or otherwise disposed of. Different usages are in vogue in different printing houses regarding these details. In small establishments one person may be able to attend to the reading of proof and all details connected therewith; but in the larger shops, especially where there is book, periodical, and other work calling for much reading, several persons are required and the work is divided so as to secure expeditious and accurate results. The proofreader's usual assistant is the *copyholder*, or one who holds and reads the copy aloud while the proofreader looks on the proof sheet and marks the errors. On work of an important nature, like historical, scientific, or technical

books, the reading of proofs will be done by several proofreaders in turn, in addition to the author's reading. The first reader will commonly look for the compositor's errors, such as misspelling, imperfect and wrong-font letters, inverted letters, bad spacing, irregular indentions of paragraphs, deviations from copy, and other typographical matters; obvious mistakes in grammar, incorrect use of words, and similar literary errors will also be noted, and either corrected or called to the attention of the author or editor. A practical knowledge of the compositor's work is necessary to read proof successfully. To be competent, a proofreader should have, in addition to a thorough knowledge of printing, a quick eye, a good familiarity with punctuation, spelling, use of capitals, etc. To the compositor and proofreader there are a thousand and one small matters that require correction, which do not appear to the ordinary reader of the completed work. The author may capitalize a word in one place and omit the capital in another similar case; an abbreviation may be used once and the same word spelled in full elsewhere; figures used in one line and the number spelled out a few lines further on; words of variable spelling may be one way in one page and according to another dictionary on the next page; the use of punctuation marks may be incorrect and inconsistent or statements of fact even may be inaccurate, through thoughtlessness or lack of technical experience. Then there is "style of the office" or the publication, which must be adhered to in certain matters. This "style" is the adoption of certain forms with regard to abbreviations, capitals, italic, kind of type, etc., in order to maintain uniformity.

Proofreader's Marks. Used to indicate corrections in type. The following is a list of proofreader's marks in common use.



Dele; take out. (See note below)



Turn inverted letter right side up.



Let it stand; change made was wrong.



Take out character and close up.



Change imperfect letter.



Period.



Em quad, for indention, etc.



Apostrophe.

^	Comma.
#	Space.
^	Caret; indicates where to insert.
/=	Hyphen.
No ¶ Run in	No paragraph; run in.
wf	Wrong font—size or style of type.
tr	Transpose.
rom	Use roman letter.
ital.	Use italic.
?	Query; word, spelling, etc., in doubt.
lc	Use lower-case letter.
] [	Move line or word to right or to left.
Sld	Take out lead.
Out see copy	When omitted words cannot be conveniently written in the margin.
②	Signs or abbreviations ringed in copy should be spelled out.

eq#

Or eq. #. Make spacing of words uniform.

↓

Push down space, quad, etc.

||

Straighten up ends of lines.

⌒

Close up.

┌

Raise word, line, etc.

└

Lower word, or line, etc.

caps.

Use capital letter.

sm. caps.

Use small capitals.

===

Three lines under words signify **CAPITALS**.

—

One line signifies *italics*.

bf

Use heavy-face type.

ae fi

Use ligature (fi, ff, fl, ffi, ffl, etc.)

Proofreader's Sounding Board. A piece of wood, about 17 x 19 inches in dimension, resembling a pine backing board, which is kept standing upright on the reader's table or bench by means of wooden supports. The proofs are held on it loosely by a heavy rubber band or metal clamp. The sounding board "breaks" the other sounds of the composing room. It throws the voice of the reader directly toward the copyholder; it brings the proof nearer to the reader's eyes, thereby allowing him to sit in a comfortable, upright position, and it saves the voice.

Proof Roller. Usually a short hand roller for inking forms when taking proofs. See *Hand Inker*.

Proof Sheet. A printer's proof.

Proof in Slips. That is, as the matter is on the galley, before it is made up into pages.

Proportion. The comparative relationship between various elements in a design.

Power Press. Any press driven by mechanical power, in distinction from a foot-power or hand press.

Pseudonym. An assumed name or a pen name used by authors to conceal their identity; a fictitious name, as opposed to antonym.

Publish. To make known publicly; to put forth; to issue; as a newspaper, magazine, book, etc. A publisher is usually understood as one who makes and sells printed matter at first-hand. He need not be a printer, engraver, or binder, but many publishers carry on their own printing, binding, or engraving rooms, while others hire one or all these operations done outside. Printing is the manufacture, and publishing is the selling of printed matter.

Publisher's Binding. Commonly understood as ordinary cloth binding.

Pull a Proof. To take a proof; originally, to pull over the bar of a hand press and take an impression.

Pull-Out. Types which have been pulled out by the suction of inking rollers on the press. Pull-outs are due to faulty workmanship in justifying and locking up, or they may be laid to the pressman who unlocks a form on the press for the purpose of planing down, changing register, etc., and does not relock the form so as to hold all the type in place.

Pulp. The soft, moist or dry, mass of material prepared to be made into paper sheets. See *Wood Pulp*.

Pulp Board. Stiff, thick cardboard of cheap grade, made of wood pulp rolled into sheets as distinguished from pasteboard which is formed by pasting sheets of card (middles) and paper together; used for box-making, book covers, etc.

Punch. In typefounding, an original die of the letter or character to be cast. The letter is cut on the end of a small bar of soft steel, which is afterwards hardened and becomes the punch. This punch is used to drive an impression into a bar of copper, which in turn becomes a matrix to be used for casting the face of the type. See *Typefounding*.

Punching. To perforate, stamp, or make holes in paper.

Punching Machine. For punching holes of various sizes and shapes in cards, signs, pamphlets, etc. They are made in several styles, operated by a hand lever, by foot treadle, or by mechanical power.

Punch Press. A small machine for punching holes in cards, paper, etc., operated by a handle or treadle.

Punctuation Marks. Certain marks and signs used in such places in language composition as to bring out the sense clearly. They are guides chiefly for the eye in reading, and, although many of them are generally used in accordance with well-defined rules, there are greatly divergent opinions and practices in vogue, which make the study of their proper use a difficult one for the young compositor. The modern system of punctuation was developed after the invention of typography, primarily by Aldus Manutius and his family, learned printers of Venice, during the sixteenth century. Old manuscripts, dating as far back as the third century, are written entirely in capitals, without spacing between the words and without marks of punctuation. Later, words were separated by spaces and the sentences were indicated; then parts of a sentence were pointed off by a slanting stroke, thus /, called a *virgule*, which later developed into the comma. Following is a list of punctuation marks in common use, together with other signs used to indicate correct pronunciation, etc., and otherwise to assist in making composition clear and understandable.

,	Comma	-	Hyphen
;	Semicolon	'	Acute accent (á)
:	Colon	`	Grave Accent (à)
—	Dash	^	Circumflex Accent (â)
— —	Two-em dash	~	Circumflex or Tilde (ñ)
?	Interrogation	—	Long or macron (ō)
!	Exclamation	˘	Short or breve (ö)
()	Parenthesis	¨	Dieresis (ë)
[]	Brackets	¸	Cedilla (ç)
'	Apostrophe	^	Caret
***	Ellipsis	" "	Quotation marks
...	Ellipsis; also leaders	{ }	Braces
*	Asterisk		Parallels
†	Dagger or obelisk	¶	Paragraph
‡	Double dagger	☞	Index
§	Section	** or ***	Asterism

Pumping. In paper-ruling, the working-up of colors into the shank of two- or three-ply back pens.

Pyramid Heading. A display heading set in half-diamond or inverted pyramid form, the top line being longest and succeeding lines gradually shortened; used in newspaper and similar work.

Quads. Cast metal blanks, wider than the three-to-em space, used to fill the larger white spaces in lines, such as to indent the first line and to fill out the last line of a paragraph. The original term was quadrats (that is, a square, or with four equal sides), but the shorter term is commonly used among printers. Quads are necessary parts

of every font of type, and are made in sizes to accompany all type bodies. There are generally four forms: en, em, two-em, and three-em. The en quad is half the square of any given size of type body, (■); it is really a thick space and is commonly used as such, being next wider than the three-to-em. The em quad is a square of the type body (■) and is the usual blank to put at the commencement of paragraphs in ordinary reading matter, unless the lines are very long, in which case the indention may be two or even three ems. For wide blanks two-em quads (■■) and three-em quads are provided. Quads are cast high or low, to match the spaces of a font of type. See *High Spaces and Quads*, *Low Spaces and Quads*, *Spaces*.

Quad Box. The lowest right-hand corner apartment in the ordinary lower case. It holds the two-em and three-em quads, and when a careless untidy "slob comp" gets at the case for a short time it also contains a miscellaneous assortment of pi and debris which he is too lazy to put into their proper case in good order.

Quad Ream. One-fourth of a folio ream. Quad reams are produced by cutting 500 sheets of 17 x 22 stock in quarters and then wrapping 2,000 8½ x 11 sheets in four different packages of 500 each.

Quadri-color. A name given to a process of plate-making for color printing, using a plate for each of the three primary colors and a fourth plate for black ink; four-color printing. See *Three-Color Work*.

Quadruple. A sheet of paper, a form, or other work four times the size of a smaller one, or a smaller form duplicated to make four of a kind.

Quadruple Press. A rotary press that prints 32 newspaper pages at one revolution of the cylinders.

Quality Standard. A term used in the paper industry to indicate certain degrees of value; also that each degree is of uniform quality and that it represents a definite grade-level within its class.

Quarter-binding. Leather or cloth back, with paper board sides.

Quarter-bound. A book with the back made of one material and the sides of another; back and sides are turned in on the boards.

Quarterly. A publication issued once every three months.

Quarter-sheet Card. Among printers, commonly understood as one-quarter of the size 22½ x 28½ inches, which is a standard size of many kinds of cardboard. Quarter-sheet is a convenient sheet for window signs, small placards, etc.

Quarter-sheet Poster. See *Poster*.

Quarternote. A term sometimes applied to coarse halftones made of zinc for newspaper work; 65 lines or less to an inch; a newspaper halftone.

Quarternions. Sheets of two leaves, or four pages, nested together to form a pamphlet or section of a book.

Quarto. A sheet of paper (approximately 18 x 24 inches, or the size known as medium) folded twice, making four leaves, or eight pages. Regular quarto is the size folded in cross sections; making the leaf 12 x 9 inches; long quarto is the sheet folded twice in the same direction. Other quartos are demy quarto (8 x 10½ inches), cap quarto (7 x 8½ inches), royal quarto (9½ x 12 inches), etc. A size of book in which the leaf is quarto. In publisher's notices quarto is often abbreviated to 4to. See *Folio*, also *Octavo*.

Quarto or Quarter Medium. A size of press (about 10 x 15 inches) large enough to print a quarto page. A half-medium press is one which will take a half sheet of medium paper (18 x 24 inches), and an eighth medium press (about 7 x 11 inches) one which will print a sheet one eighth of medium. These terms are not now so common as formerly, as they are not precise enough to designate the many variations in sizes of machines now made; the more accurate custom is to state the actual size in inches.

Quarto Galley. A galley about 10 x 16 inches, or wide enough to hold quarto pages.

Query. That is, to inquire further, look this up; used as a marginal note in copy or on proofs, to call attention to some matter in doubt. Sometimes represented by the question mark (?) or by *Qy.*, *qy.*, *Qu.*, *qu.* To query is to mark with a query.

Question Mark. (?) The interrogation point. The apprentice should notice that this point and the exclamation mark always require a thin space to separate them from the preceding word, unless the point is cast with a shoulder on the side. They should also be separated from the following word by a thick space or two spaces. Bad? Of course it is! Better? Do it right!

Quill. A large strong feather of a goose, swan, or other bird, made into a pen for writing, before the invention of steel pens; hence, symbol of pen or writing instrument.

Quire. Twenty-four sheets of paper, or one twentieth of a ream of 480 sheets; if the ream consists of 500 sheets, as it often does now, the quire is twenty-five sheets. Originally, a set of four sheets of parchment or paper folded so as to make eight leaves, the ordinary unit of construction for early manuscripts and books. Formerly all paper came from the mill folded in quires or fractions of a quire, as boxed writing paper now sold by stationers. To *quire* paper is to fold it in quires or parts of a quire. A book in separate sheets or signatures not sewed or bound, is said to be *in quires*. See *Ream*.

Quirewise. A booklet or pamphlet imposed so that the folded sheets will nest or fit into each other in one section and the work may be saddle-stitched; in distinction from single or folded sheets that are

placed side by side and must be side-stitched or sewed. To print on the first and third pages of a sheet, so that a number of sheets may be folded together and stitched through the middle.

Quoins. Small wedges used for locking up forms; made of hard wood and also of iron, in several varieties. The old-style quoins were small pieces of wood, and were driven up with a mallet and shooting-stick between the chase or strip of furniture and a beveled stick; the gradual driving up of the quoins locked the form until it was tight enough to lift up. This method of locking up has been generally superseded by the use of iron quoins and other devices which serve the purpose with less trouble in shorter time and with greater accuracy. Two familiar styles of these mechanical quoins known as the Hempel (see *Hempel Quoin*) and the Wickersham (see *Wickersham Quoin*). In daily newspaper offices the forms are locked up by means of steel beveled sticks and screws fitted into the sides of the chase; these may be operated very quickly by the use of a wrench.

Quoin Key. The T-shaped piece of iron used to operate metal quoins in locking up forms.

Quotation. An expression, a statement, or a passage repeated as the utterance of some other writer or speaker. It is usually, but not always, enclosed in quotation marks. (See *Quote Marks*.) In composing-room parlance pieces of a kind of hollow metal furniture are known as quotations; more exactly *Quotation Furniture*. See *Furniture* and *Quotation Furniture*.

Quotation Quads. Quotation quads are hollow quads, cast in molds, as accurately as regular solid quads, and are more economical than the latter for filling blank spaces in type forms. They are made in four bodies; 18-, 24-, 36-, and 48-point. The sizes are, in points; 18 x 24, 18 x 36, 24 x 24, 24 x 36, 36 x 36, 36 x 48, 48 x 48, and 48 x 96. The hollow part of these quads should always be placed downward. If set otherwise they form cups in which dirt, paper, waste, etc., may accumulate.

Quotation Furniture. Metal furniture, made mostly in small sizes, ranging from 2 x 4 picas to 4 x 6 picas. It is hollow on the bottom side, but has a solid top, like a large quad. See *Furniture*.

Quoted Matter. That which is enclosed with quote marks.

Quote Marks or Quotes. (" ") Brief terms for quotation marks, used at the beginning and ending of quotations. In English composition these are commonly two turned commas at the beginning and two apostrophes at the end. In reading proof, the copyholder who reads aloud usually terms the first as "commence quote" or simply "quote," and the other as "close quote."

Rack. A framework for holding cases, letter boards, etc. See *Case Rack*, *Cabinet*.

Rack-and-cam Distribution. Where the ink is spread evenly by means of a pyramid of vibrators and rollers working together.

Rack Hanger. On a printing press, the frame which carries the driving mechanism, bolted to the under side of the bed.

Radiography. See *X-ray Photograph*.

Rag Cutter. In paper-making, a special machine having revolving blades and sharp prongs, which tear and chop the rags into small pieces of uniform size.

Rag Paper. Made from linen or cotton rags; the better classes of paper are made from linen rags.

Rag Pulp. Pulp consisting principally of cotton rags, shirt clippings, etc., used for making the best grades of bond, ledger, linen, and writing papers.

Rags. In the manufacture of paper, cotton or other textiles such as cuttings from shirt, linen, and other textile factories, discarded garments, etc., used as a raw material for paper making.

Railroad Board. A white-lined board, usually in several plies, used for show cards and the like.

Railroaded. A name applied to type matter that is sent to press before it has been read and corrected. The term is used on newspapers, and is traceable to the fact that the forms for an edition frequently must be made up in great haste in order to allow just enough time to print the papers and get them to the (railroad) train before its departure.

Railroading. A term used to describe the making-over of words at the ends of successive lines.

Railroad Metal Furniture. (So called because of its rail-like shape.) Furniture made in 16½-inch lengths on 2-, 3-, 4-, 6-, 8-, 9-, and 10-point bodies, and cut to any desired lengths. Because its ends do not provide sufficient support for types or other materials coming in contact with them, it is used mainly to fill large blank spaces or gutters which occur in making up or imposing type pages. Also called *Reversible Furniture*. See *Furniture*.

Railroad Ticket Press. A special card press for printing railroad tickets and numbering them at one operation.

Raised Printing or Imitation Embossing. This is a process of printing from type or line engravings in relief on ordinary platen or cylinder presses. A special ink is used and impressions are made on the stock as in ordinary printing. The printed sheets, while the ink is still wet, are sprinkled with a special powder and then put through a baking process which causes the powder particles to adhere to the printed surfaces and fuse together and give the characters a raised effect in gloss or dull finish, depending upon the chemicals used. While the result resembles steel-die embossing or engraved copperplate printing, it is easily distinguishable from genuine steel-die embossing

and copperplate engraving. The lines are not so sharp and clean, the impression, if any, on the back of the sheet is a squeeze from the face instead of an emboss from the back and there is not the freedom and grace in the general effect.

Ramage Press. An old-time hand press, first made of wood entirely, but later made of iron, by Adam Ramage, of Philadelphia, about the first of the last century; said to be the first press made in this country.

Ratchet. A small instrument for turning the screws of patent blocks or electro bases.

Ratio. The number of turns of a fly-wheel of a press for one impression, e. g., a press having 12 turns is said to be "high ratio."

Reader. Sometimes applied to the proofreader. In this country, the person who reads manuscript and other copy sent in for publication. Publishing houses now have many such literary readers to whom new works are submitted for examination before printing. An advertisement in the form of ordinary reading matter similar to the regular text of a newspaper or periodical is also known as a reader; a brief advertisement of this kind is a reading notice.

Reader's Marks. The proofreader's marks on a proof, in distinction from author's marks or corrections, making changes from original copy.

Reading for the Press. Proofreading; more specifically, reading final proofs before printing.

Ready Print. See *Patent Outside*.

Ream. There is much confusion in the paper and printing industries because of the variation in the number of sheets of paper which make a ream. At present a ream may be from 480 to 516 sheets, usually 500 sheets according to the class of paper. By action of the Paper Conference Board (effective Feb. 1, 1927) and approved by the United Typothetae of America, the ream as a basis of count and weight is obsolete; instead 1000 sheets becomes the standard basis.

Recipe Mark. The apothecary or medical sign, used at the beginning of prescription. (Latin *recipe*, to take.)

Record Type. The peculiar letters, signs, accents, etc., used in reprinting with exactness old books, records, and documents.

Recto. The first page of a leaf, or the right-hand page of a pair, 1, 3, 5, etc. The other side, 2, 4, 6, etc., is verso.

Re-engrave. To finish an engraved plate, like a halftone, by going over it with engraver's tools; an operation requiring great skill.

Re-etch. In the engraver's work to give a plate, in whole or in part, a second acid bath for the purpose of further etching; this is often done by brushing the parts with acid with a small brush.

Reference Marks. The signs which come with fonts of roman capitals—asterisk (*), dagger (†), double dagger (‡), section (§), parallel (||), paragraph (¶)—have been the common marks to refer to footnotes in book pages, and they serve the purpose when used only occasionally; but when many references occur on one page the characters are clumsy and objectionable. Superior figures and letters are now more often used; they are neater and permit of any number being used without repetition or confusion. Superior figures and letters are made by typefoundries for all the usual sizes of book type, but when these are not at hand the compositor may improvise them by justifying small-size types into the line. In a ten-point line, for instance, a figure and an en quad of six-point with two three-to-em spaces placed sideways below, will justify accurately and quickly.

Register. (a) To adjust the pages of a form so that they will print exactly on the back of those printed on the first side; to impose a form or to fix gages on the press so that the pages, when printed back to back on the sheet, will strike in the proper places. (b) To print two or more colors beside each other, or one over the other, so that they will print in their proper places. (c) A list of signatures at the end of early printed books for use of the binder. (d) In paper-ruling, a sheet is said to register when ruled on both sides so that when the sheet is held up to the light the lines exactly coincide.

Register Hooks. Small clamps or catches inserted in the modern steel bases upon which electros are mounted for printing. The hooks hold the bevelled edges of the plate. The hooks are moved back and forth very precisely by means of screws, and the plate can thus be quickly registered into the exact position desired. See *Patent Blocks*.

Register Rack. The heavy metal strip on the side of the bed of a cylinder press, having teeth geared to fit the cogwheel on the end of the cylinder; it serves to keep the motion of the bed and cylinder in unison, or in register.

Register Sheets. Special or extra sheets used as guides for registering a second or subsequent form of a work. When a sheet is to be printed with more than one form, as for color, or to be backed up sheetwise, there should always be some extra sheets printed on the first form, to be used in registering the other forms.

Reglet. Thin strips of wood similar to leads, only larger; they are used in posters and other large work where metal would be cumbersome.

Regulator. Same as controller, but usually applied only to hand-operated speed-changing devices. Applied also to any device for regulating some part of the electric circuit.

Reinforced Signatures. Pasting cambric around or in the fold of signatures for the purpose of strengthening the paper and binding; often done on the first and last signatures of a book because of the extra strain at those points.

Reiteration. The printing on the back of a sheet already printed; printing the second side. A term now rarely used.

Relative Weights. See *Equivalent Weights*.

Release. See *Hold for Orders*.

Relief Printing. That done from raised surfaces, like type, woodcuts, zinc and halftone plates; in distinction from intaglio work, such as copper and steel plates, or from lithography.

Religious Signs. See *Signs, Ecclesiastical*.

Replate. See *Remold*.

Remold a Page. In newspaper offices, when a type form is sent to the stereotype room for the second time and another cast is made of it, it is said to be remolded. Same as replater.

Reporter. One who gathers and writes news for a newspaper.

Removable Tympan. It consists of a steel frame which fits snugly on the sides of the platen of a job press. This frame holds the top sheet and any other make-ready sheets which lie on the iron platen, and it can be taken off and replaced intact, in exact position. Its advantage is that, by having two or more of the frames for a press, much idle time of the press may be saved. By putting the type form on the press and taking an impression on this tympan, both form and tympan are then taken off for finishing the make-ready; if it is necessary to lift off a job before the run is finished, the form and tympan, with its make-ready, are removed and another form with another tympan, put in place, and on its completion the first form and tympan replaced in a short time. In an office with limited press facilities and on rush work of ordinary grades, the use of a removable tympan seems of unquestioned advantage.

Renaissance. The period of art activity in the 14th and 15th centuries in Italy. A revival of the classic arts but developed and enriched beyond their former heights.

Reprint. Copy for a book or other work which has already been printed, in distinction from written manuscript. A second or new printing of a work. Reprint copy is, naturally, easier to handle than manuscript, on account of its legibility. A reprint of a work may be done in different type and style from the original; when an exact reprint is meant it is facsimile.

Resin. Any one of a class of yellowish-brown solid inflammable substances. Resins exude from trees in combination with essential oils, gums, etc., in a liquid or semi-liquid state. See *Rosin*.

Resist. A coating of any kind applied to the surface of a plate in order to prevent or retard the corrosive action of an acid or the fixing of a color.

Resistance. A system of wires or other material which impedes the flow of electric current and reduces electric pressure or voltage.

Retouch. To go over, with brush, pen, or pencil, a drawing, photograph, negative, or other copy which is to be engraved, and touch up important details or tone down unimportant or useless parts; to prepare imperfect copy for making a good engraving.

Reverse Plate. A line-plate or engraving in which the parts that are usually black or shaded are the opposite, or reversed, so as to appear white or gray.

Reversible Metal Furniture. See *Railroad Furniture*.

Revise. A proof taken after corrections have been made; to compare a proof so taken with one on which errors are marked, to see if corrections are properly made. See *Proof*.

Repped. Said of a paper which has been given a ribbed effect by impression from steel rollers.

Retrées. Imperfect sheets of paper, withdrawn after the mill sorting.

Riding. When any part of a form works up on a press, it is said to be riding.

Riding Roller, Riding Changer, or Rider. An extra roller attached to a press in such a manner that it rests upon and revolves with a form roller. It is usually of steel and has a slight vibrating or zigzag motion endways. Its purpose is to give additional ink distribution on the form.

Ring Mark. Changes from original copy are marked on proofs by drawing a circle around them; these changes may be made by the proof-reader or author, and are not chargeable to the compositor. If the compositor is on piece work, he is paid extra for ring mark corrections. A circle or ring drawn around an abbreviation, sign, etc., in copy is a direction that the word should be spelled in full.

Ripple Finish. A fretted finish in paper, similar to the ripples on water.

Rise. A form is said to rise when it may be lifted from the imposing-stone without letters dropping out. A form locked too tightly or imperfectly justified, in which quads, leads, furniture, etc., work up to the level of the type and show on the sheet, is also said to rise, or work up.

Roberts Numbering Machine. A style of typographic numbering machine, printing numbers either forward or backward; made in various sizes.

Rocker Press. A style of proof press in which the impression is made by means of a segment of a cylinder which is turned over the

form for the impression and is then turned back in readiness for the next impression. See *Vandercook Press*, and *Proof Presses*.

Roll. A small wheel attached to a handle, the edge of the wheel having a decorative pattern. It is used for ornamenting book covers.

Roller. A metal rod or core covered with an elastic composition, used to spread ink on the form or other printing surface. The early method of spreading ink on the form was with balls, which were small round cushions, covered with soft leather and stuffed with wool. These had handles and were used in pairs; a dab of ink was placed on one, and by beating them together it was spread on their surfaces, and afterward dabbed on the printing form. The invention of inking rollers was contemporaneous with that of the cylinder press (1814). The first rollers were covered with buckskin or a similar leather, but were not successful; afterward a composition of glue and molasses was used. This composition was first employed in the potteries of Staffordshire, England, to put designs upon dishes with irregular surfaces. An elastic material, which easily took up the ink and as readily deposited it again was peculiarly adapted to the printer's use. The early rollers of this modern style were made of glue and molasses only, a mixture which possessed the peculiar tackiness that was required, but they were expensive because of their short life—a few weeks at the most—under favorable weather conditions. Then glycerine was added to the composition, and the quality of durability was given to the roller. Glue-and-molasses rollers dried and shrunk rapidly and a glassy skin formed on the surface in a few days; this tendency was overcome by using glycerine. The peculiar qualities of glycerine are that it does not evaporate and does not freeze at any temperature and consequently heat and cold have little effect upon its consistency so that rollers in which it is used are less affected by variations in the temperature; glycerine also has a strong attraction for moisture and will increase in weight if exposed to damp air. It is this last quality of glycerine that is the cause of the pressroom troubles with rollers, especially in warm, damp weather, as it is then that the rollers become "green," or soft and watery, so that they will not take up the ink from the distributing surface and carry it to the depositing surface. Rollers are now made after many different formulas. Their manufacture has become a specialized branch of the printing industry and each maker produces them according to formulas that are the result of much experience with new substances and methods, so that the exact composition of a modern roller is a trade secret. In brief, a roller is made by first having a metal rod, or core, placed in the center of a cylindrical mold, the inside of which is polished and oiled. In order that the composition may hold firmly on the core, the rod is painted and wound with strong twine; in the case of large rollers for cylinder presses, the iron rod is covered with a wooden sheath, to enlarge its size, and this is then wound with cord. The core is placed in the mold and held by end pieces to keep it in the exact center, core and mold are then slightly warmed, and the melted composition poured in, and the whole

allowed to cool. The warming of the mold is important, as, if it were cold, the hot composition would suddenly chill against the iron and leave streaks in the face of the roller. The old hand method was to cast rollers one at a time, and to pour the composition in at the top. This method is still employed in a limited way, but the modern roller maker, who casts them in wholesale quantities, has his molds arranged in groups, in a large steel barrel, called the "gatling" method. He also avoids air bubbles by pumping the composition into the bottom of the mold until it is filled to the top. After a roller is made it is not ready for use until it is seasoned. This is done by exposing it to air long enough to give it a certain toughness to withstand the pull and strain it will undergo in operation on the press. Upon the care and good judgment used in seasoning a roller, will depend its working qualities and its life, and only experience, coupled with close observation, will teach a person how to season a roller properly. The time required to season a new roller may be from one day to two weeks; it depends on the weather or the conditions of the atmosphere. Rollers will season quicker in dry weather than damp weather, and quicker in winter than in summer. The degree of seasoning required often depends on the kind of work for which the roller is to be used; stiff inks will need tougher rollers than may be used for soft inks; slow presses may safely have softer rollers than those running at high speed. After rollers are properly seasoned, the seasoning should not be prolonged; it is well to put them into use, and if not in use to cover them with machine oil, and to keep them covered this way as much as possible, especially if they stay in a warm room. This seasoning and preserving of inking rollers is one of the most important problems of the pressroom. Neglect to care for them promptly may mean speedy ruin of the best rollers. Ink should not be left to dry hard on them, especially if they are new, or nearly so; to clean off ink in this condition, will injure the face, either by roughening it with the hard rubbing required, or because of the strong washing fluid needed to loosen the ink. A good practice is to wash the rollers as soon as a job of printing has been completed, if the same color and kind of ink are not to be used again on the press the same day. Common kerosene is often the most desirable washing material for rollers. It dissolves the ink fairly well and has no severe effect on the rollers, evaporating slowly, though leaving a slight residue of oil which is objectionable when fresh ink is to be put on the rollers at once. This oily residue, however, may be easily removed by wiping carefully with a clean rag. It sometimes happens that it is impossible to wash all the rollers on the presses at the end of the day, and in that case it is advisable to pour some machine oil on them and run the press for a few revolutions, then let this ink and oil stay on till the rollers are used again. When quick-drying or colored ink is used, common oil may not prevent it from drying hard, especially over Sunday; in this case, it is better to wash the ink off clean and then cover the rollers with oil, or set them in a box or closet in the place where they will keep cool and slightly moist. A shallow pan of water in the bottom of a roller box is often used to preserve extra rollers that are not in regular

service. Cleaning should be done carefully and thoroughly each time, and no specks of old ink allowed to remain just because they do not come off as readily as the softer ink. Specks left after careless washing and allowed to remain for a day or two under fresh ink, will soon adhere to the composition so strongly that they cannot be cleaned off without taking a spot out of the surface of the roller and so ruining it. Rollers that are used for colored inks require especial care to keep their surfaces free from cuts, cracks, and pinholes, because in these places old ink will lodge and can not be thoroughly cleaned out, but will remain to work out later into the next ink that is to be used. For light colors and tints of ink, rollers with perfect surfaces are imperative. Different names are applied to the various kinds of rollers, as *ductor* (duct), a fountain roller or drop roller which operates between the fountain and the distributing plate on the press; angle rollers, distributing rollers, placed diagonally across the inking plate of a flat-bed press; form rollers, the rollers which deposit the ink on the form. See also *Distributor*, *Riding*, *Vibrator*, and *Waver Rollers*.

Roller Bearers. Bearers, usually made of wood, placed in a job-press form to cause the rollers to rotate. See *Bearers*.

Roller Carriage. The framework or apparatus on job presses, with hooks, springs, etc., which carry the form rollers back and forth over the form.

Roller Composition. The substance of which printer's rollers are made; glue, sugar, glycerine, etc., melted together; when cool it makes a stiff, jelly-like mass.

Roller Frame. A light iron frame for holding a hand roller while in use.

Roller Pins. Pins fastened to the roller stocks on a job press. They engage in slots in the gudgeons, so that the roller stock will be driven by the gudgeons.

Roller Matrix. A matrix made by means of a roller press, in distinction from one made by beating with a brush or by pressure from a platen or flat surface.

Roller Mold. A long metal tube, used for casting rollers; of steel or brass tubing. See *Roller*.

Roller Tracks. The metal strips at each side of the bed of a platen press over which the gudgeons (roller-stock wheels) roll when the press is in motion. See *Bearers*.

Roller Stock. The core of a roller, on which the composition is cast.

Roller Wheels. The small collars on the ends of form rollers on job presses, etc. They are sometimes called truck rolls.

Roll-feed. Taking paper from a roll instead of single sheets, as on rotary presses.

Rolling Press. The style of press used for copperplate and steel-plate printing; the plate is rolled under a U-shaped surface to make the impression. Sometimes called a D-roller press. See *Copperplate Engraving*.

Rolling Up. To spread ink on a form or engraving, especially with a hand roller, as for a proof, etc.

Roll-leaf Stamping. A modern process for gold stamping, used in the bookbinding, printing, and other industries. The method consists of stamping the paper, leather, cloth, or other material with a heated embossing die and the roll-leaf, which is fed mechanically and automatically in between the paper and the die. The roll-leaf, which is made in any shade of gold, silver, and metallic colors, at first in the state of a fine powder, is applied to glassine paper in very thin layers. For gold roll-leaf the glassine paper is coated with an adhesive, and then with a thin layer of high-grade bronze powder. It is subsequently allowed to age, so that the ingredients thus far applied may become set and hard. The leaf is then sized with a liquid of several adhesives. Finally the leaf is wound in rolls of the desired length. See *Foil*, *Oeser Foil*, and *Gold Leaf*.

Roman Design. A transplanted development of Greek design, influenced by Roman habits and character. The Roman design is more realistic in the treatment of natural forms than the Greek.

Roman Notation. The use of letters, instead of the ordinary Arabic figures, to express numbers, as I, II, III, IV, V, etc. The letters used are I (representing one), V (five), X (ten), L (fifty), C (one hundred), D (five hundred), and M (one thousand). Units of a higher order stand to the left of the one of lower order; when a letter of lower order stands before one of higher order, its value is subtracted; thus IV reads four, IX nine, XL forty, XC ninety. This system of notation should be clearly understood by every compositor, as its use is common in many kinds of work.

Roman Type. The common form of letter face, such as is used for the text of this book; it is the kind of letter preferred for books and newspapers by English-speaking people and by the Latin races. Roman letter is distinguished from italic with which it is often mated; from Greek, with which it has many characters in common; and from black-letter or Old English, as well as from script or handwriting, etc. The first printing that was done from type was not done with Roman letters, but from what is known as black-letter, an imitation of the hand work of the manuscript makers and scribes at the time of the invention of type. Roman letters were evolved later; the capitals being copied from old Latin lapidary letters, or those cut in stone, and the small letters (lower-case) first made in type about 1645, near Rome in Italy. These early letters were later greatly improved in symmetry and used as a body letter for books by Nicholas Jenson at Venice

about 1472, and since then the forms of Roman types have been based, with numerous variations and modifications, upon these early characters. See *Majuscule*, *Modern Roman*, *Oldstyle*.

Rooker Case. A type case, $28\frac{1}{2}$ x 14 inches, used to some extent in newspaper composing rooms. It holds nearly the same quantity of smaller sizes of type as the standard size case and has the advantage of occupying less room.

Root Sign. The radical sign ($\sqrt{}$) used in mathematical work. See *Signs*. The same sign is often used typographically as a check mark to verify or call attention to certain items in a list.

Rotagravure. A photogravure printed on a rotary press by means of a copper or metal cylinder. It is an intaglio printing process done with a design made by the aid of photo-chemiography. The word "rotagravure" is a registered trade-mark word which came from the name of a German syndicate, the "Rotagravur Tiefdruck Gesellschaft," of Berlin, whose machinery and process were introduced into this country. By abbreviating the English word "rota," meaning a wheel or roll, and "gravure," the French for "engraving," and combining the two, we have rotagravure.

Rosette. An ornament or form having some resemblance to a rose, from the center of which several petal-like parts radiate.

Rosin. A variant of resin, though the former term is often specifically applied to colophony, the particular resin of the southern pine tree, which is the residue of the distillation of the volatile oils of turpentine.

Rosin Size. A compound formed by boiling powdered rosin with carbonate of soda. Soluble in water, and used for sizing paper in the beating engine.

Rotary Photogravure. An intaglio printing process in which the impression is produced from an etching on a curved copper plate attached to the cylinder of a rotary press. Now generally called *Rotogravure*.

Rotogravure. An intaglio printing process for rotary presses, much used by newspapers and magazines, and also in printing flat sheets for various classes of commercial work. In rotogravure the original copy is photographed and a negative is made, which is properly retouched. This negative is then photographed and a positive is produced on transparent celluloid. The positive, which is also retouched when necessary, is printed upon sensitized gelatine paper called carbon tissue. A reversed line screen is then printed over the picture and the so-called carbon resist is ready to be transferred to the cylinder. The tissue is dampened and rolled onto a copper cylinder to which it adheres. After drying, the tissue receives a flow of warm water which loosens the paper backing, leaving the gelatine film on

the cylinder. In the shadows or tones, this film is very thin, the thickness increasing as the tone lightens, so that the etching solution penetrates the film more quickly where the "cups" are to be etched deeper than in the shadows or tones. The copper cylinder is finally attached to the plate cylinder of the press. See *Photogravure*, and *Intaglio*.

Rotogravure Paper. A highly finished book paper, in rolls, for rotogravure printing.

Rounce. (a) A small cylinder of wood on an iron journal with a handle placed beneath the ribs of a hand press and connected with the ends of the carriage or bed with straps by which it is wound in or out. (b) The handle which moves in and out of the bed of the old-style hand press.

Round Letters. Letters of which the sides are round, such as o, c, e, etc.

Roughing. Treating smooth-finished paper, either before or after printing, to a process which roughens the surface or destroys the shiny glaze. See *Pebble Finish*.

Rough Proof. A hurried proof, taken without special care, as with a planer, or on a galley press, hand press, etc.

Router. The purpose of a router is to cut away the superfluous surface of a printing plate. This is usually accomplished by guiding a high-speed vertical cutter over the surface of the printing plate and cutting, or "routing," out the space around the printing surfaces. Such is the action of the movable-spindle type of router as opposed to the fixed-spindle type on which the printing plate itself is moved about under a horizontally stationary cutter. The movable-spindle router is widely used by photo-engravers, electrotypers, wood engravers, and makers of linoleum printing rolls. The fixed-spindle type has found special vogue among the die-sinking and similar crafts.

Routing. Cutting out deeper the blank places in a printing plate, with a routing machine or tool.

Royal. A size of flat writing paper 19 x 24 inches.

Royle Ball-Bearing Router. A movable-spindle machine capable of handling plates 32 inches wide and of any length. The running section, including the cutter head and the transmission pulleys, is equipped throughout with ball bearings. The action of the machine is, consequently, exceptionally light. The universal movement of the cutting section is flexible and responsive to the operator's touch. The pedal controls of stopping and starting, and of raising and lowering the cutter sections are convenient and dependable. The speed of the cutter is about 20,000 r. p. m. The Royle Ball-Bearing Router No. 1 is particularly adaptable to the fine work of engravers and electrotypers.

Rubber Offset Press. See *Offset Press*.

Ruled Paper. Blank books, writing paper, office blanks, etc., ruled with horizontal, perpendicular, or with both horizontal and perpendicular lines, as guides for writing, or for division into columns, etc. This ruling is done on special machines in which the flat sheets are carried along a framework by means of tapes or threads; as the sheets move under a set of pens arranged in the required positions the paper receives the ruling. Many kinds of ruled paper, like statements, bill-heads, and account books, are made in more or less uniform styles, and are kept in stock by dealers and stationers, while an immense quantity of specially ruled paper is constantly being made by printers who make a specialty of stationery and blank-book work. The following are some standard sizes that are commonly kept in stock by paper houses:

Letterheads	$8\frac{1}{2} \times 11$	$-\frac{1}{4}$ of 17×22	folio
Packet Note	$6 \times 9\frac{1}{2}$	$-\frac{1}{8}$ of 19×24	royal
Bill-heads	{ 6's wide $8\frac{1}{2} \times 4\frac{3}{8}$ $-\frac{1}{8}$ of 14×17		
	{ 4's wide $8\frac{1}{2} \times 7$ $-\frac{1}{4}$ of 14×17		
	{ 3's wide $8\frac{1}{2} \times 9\frac{1}{8}$ $-\frac{1}{8}$ of 17×28		
	{ 2's wide $8\frac{1}{2} \times 14$ $-\frac{1}{2}$ of 14×17		
Statements	{ $5\frac{1}{2} \times 8\frac{1}{2}$ $-\frac{1}{8}$ of 17×22		
	{ $5\frac{1}{2} \times 11$ $-\frac{1}{8}$ of 17×22		
	{ $5\frac{1}{2} \times 5\frac{3}{8}$ $-\frac{1}{12}$ of 17×22		

Ruling Ink. Ruling inks are eosine and aniline, which are coal-tar products or benzol, and are purchased in powdered form. To dissolve, the powder is added to boiling water in sufficient quantity to produce the required density of color. Some rulers prefer rainwater and add a teaspoonful of vinegar when mixing the inks, especially for purple color; others claim that boiling the water kills the color and prefer cold water. Obviously rainwater is preferable to water containing alkali, but either hot or cold water may be used. Boiling water dissolves the color more thoroughly than cold water, hence it gives better results. The following colors are considered standard for the ruling of paper: faint-line blue—pure indigotine; chemically pure soluble blue; French indigo paste; neutral indigo paste. Down-line blue—patent royal blue; imperial blue; ultramarine blue. Red—eosine; carmosine; vermilion red; bluish red; ruby red. Green—emerald green (yellowish); blue-green; olive green. Purple—blue-purple (violet). Brown—reddish brown; walnut brown. Yellow—lemon, medium, yellow, orange. Black—jet black; gray black. The Munsell color system has not yet been applied to ruling inks; hence the old terms are used here.

Ruling Machine. These machines are of various types and construction, and are used for ruling of large blank paper sheets intended for account books, statements, bill-heads, etc. Most machines may be used for either single or double ruling, i. e., ruling both sides of the sheet in one operation. Dual ruling machines will strike down-lines and cross-lines at one feeding. Quadruple machines enable the ruler to down-line and cross-line both sides of the paper at one feeding.

The Hickok and the Dewey penruling machines are well known commercially. Both machines have automatic feeding attachments. The Dewey card-ruling machine has a speed of forty thousand cards an hour, with perfect alignment. This machine is used a great deal for ruling index cards, both striking and faint-lining. It will take cards from 3 to 12 inches in size. The McAdams disk-ruling machine is a rotary machine, built to rule both sides with one feed. For some styles of work the disk-ruling machines are superior, while for others the pen machines are preferable. The ruling on the McAdams disk-machine is done by revolving disks and the patterns are set up on rollers. The ink-feed consists of a water-tight well. This is just below the rubber roller, in which flannels are placed and fastened to pins to prevent slipping. A portion of the flannel is placed on the rubber feed-roller and the disks, by reason of their being set so that their surfaces touch the roller, convey by constant revolution the ink from the roller to the paper. The paper passes between the rolls and is ruled on both sides. Automatic counting, perforating, and slitting attachments can be supplied with these machines. The speed of the machine is gaged according to the size of the paper, and can be made to average twelve reams of folio per hour. See *Hickok Ruling Machines*.

Running Blind. When double or triple pens on a ruling machine run together and rule a wide line.

Running Head, or Title. The title of the book or subject placed at the top of each page.

Running or Fanning Out. (*a*) Working out the ends of a pile of sheets on the side for pasting, preparatory for tipping. (*b*) Fanning out a lift of paper on the feed-board of a press, so that each sheet can be pushed to the gages easily.

Run In. In composing and proofreading, to put phrases or sentences into one paragraph; to set matter without paragraphing. Run on, to continue in one paragraph.

Run Rounds. Type matter justified to fit close around small engravings, special designs, and similar places.

Runners. Figures or letters placed down the side of a page to make ready reference to any particular line, as in school editions of classics, law briefs, etc.

Run Out. To begin the first line of a paragraph flush and indent succeeding lines; to make hanging indention.

Runs on Sorts. When copy calls for more than the usual number of any particular characters in the font. See *Sorts*.

Russia Leather. Used for bookbindings. The genuine leather is made in Russia, and is commonly brownish-red in color, although it is sometimes made in black, dark blue, and green. An imitation of this, known as American russia, or imitation russia, is made of cowhide,

a thick, strong leather with a slight grain, so closely resembling the genuine that the difference can be detected only by the characteristic odor of the Russian product. The latter is said to be tanned with willow bark dyed with sandalwood, and soaked with birch oil.

Rhythm. In design, rhythm is a movement characterized by regular recurrence of accent. *Shape rhythm* is the regular recurrence of similar shapes in a design or rhythmic increase or decrease in the size or shapes used in a design. *Tone rhythm* is a recurrence of similar tones or a regular progression of related tones from light to dark or the reverse through a design.

Saddle-stitch. To bind a pamphlet by sewing or wiring it through the middle, when the sheets are folded into each other quirewise. When the folded sheets or sections of a pamphlet are placed side by side, they are side-stitched.

Safety Paper. Used for checks, coupons, and similar purposes. Safety paper is made in various ways; that used by government departments for currency, stamps, etc., being manufactured by special processes. For many minor purposes it is made by printing a very light tint over the entire surface. The tint block may be grained or lined on the surface, or it may have some design or lettering in repetition, so as to form a background for subsequent printing or writing. The purpose is to make a surface upon which erasures or changes cannot be made without detection.

S. and C. The abbreviation for sized and calendered and applied to a finish on paper.

S. and S. C. A term which means sized and supercalendered, applied to a machine finish on paper which produces a slight gloss, without any surface coating.

Sans Serif. The style of type face in America called gothic is in England called sans serif (that is, without serif). It is distinguished by the absence of serifs or ticks on the ends of strokes and by its uniform thickness of lines. See *Gothic*.

Satin Finish. A smooth finish resembling satin.

Savings Galley. A galley for holding type which has been once used, but which is saved for use again, in whole or in part. It may be a galley to be placed on the cap. case.

Sawed In. When the signatures of a book are ready for sewing, a number of slight grooves are sawed across the back; into the grooves are placed the cords on which the sewing threads are turned.

Saw Trimmers. A general term given to machines for printers and engravers, used for the sawing and trimming of type slugs, plates, blocks, etc. See *Miller Saw-Trimmer*.

Scale. A schedule of prices establishing charges for certain kinds of work, such as wages, composition by hand or machine, presswork, engraving, etc. A scale usually fixes minimum charges, and differing prices are often based on quantity, quality, time of payment, etc.

Scale-boards. Dampened strips of spongy cardboard put between ends of lines and side-sticks, to tighten lines imperfectly justified. Originally scale-boards were thin strips of sheet iron and were used for leading lines of type; later they were used between the type pages and the chase for securing register, etc. The term and the material are not now in use, as accurately made furniture, reglets, and slugs, with more careful workmanship, make scale-boards unnecessary except in very botchy composition. Another form of the word was scabbard.

Scandinavian Design. That of the nations Denmark, Norway, and Sweden, characterized by rich interlacements, and many symbolic devices.

Scare Head. An extra large, sensational headline, as in a newspaper.

Schopper Folder Machine. A machine for registering the number of times a sheet may be folded back and forth before breaking. This test is always made across the grain of the sheet.

Scissors, Shears. In trade usage, all such instruments less than six inches in length are termed scissors, while all exceeding that length are shears.

Score. To crease cards or thick paper slightly, so that they can be folded exactly at certain points. This may be done by locking up the scoring rules in the required position in a job-press chase, then taking off the ink rollers, setting gages and feeding the sheets through in the same manner as for printing. See *Perforating Rule*. Scoring is also done on a special machine, which has a small wheel revolving slightly above an iron shelf or table; between this wheel and table the sheets pass, receiving a slight mark at the place where the fold is desired.

Scoring Rule. Brass or steel rules for creasing folders, covers, etc., on a job press.

Scotch Roman. A style of type face introduced a few years ago by a firm of Scotch typefounders. It is a modern roman with slightly thickened strokes and rounded serifs, giving a general effect like old-style. It should not be confused with Scotch-cut modern roman, which is a much older face based on a French style of roman known as Bodoni. Scotch roman is made in this country by the American Type Founders Company.

Scratch Comma. An old name for the sign / commonly used to separate shillings and pence (English money), between numerator and denominator in fractions, and in similar places, o/o, a/c, c/o, etc.

Screamer. An exclamation point put at the end of a large headline.

Screen. See *Halftone Screen*.

Screw Chase. This style of chase is chiefly used in newspaper work. Instead of lockup with quoins, screw bolts are fitted into two sides of the chase and the bolts operated by a wrench. See *Chase*.

Screw Press. A machine for imparting pressure by turning a large screw or screws. The early hand press was of this style, and this method of pressing the paper onto the type (printing) was probably suggested by the various uses to which the screw press had been put in the households of the people of the time of Gutenberg. The screw press was an adaptation of a familiar device (the cheese press or the wine press), with no originality about it. It was made of wood and was operated by turning a screw through a nut, the moving of the screw bringing the platen and the bed into contact. The form or type was released by the reverse movement of the screw. After a while a sliding bed and frisket were introduced.

Screw Quoin. A small iron quoin whose side-pieces spread or contract by means of a screw bolt which is operated by a small wrench. Not much used, except in amateur printing outfits.

Screw Stick. A compositor's stick in which the knee is held to the back plate by means of a screw. In the old-style screw stick a short screw, requiring a screwdriver to operate, goes through the back plate and into the knee. The common job stick, in which the knee is held in place by a thumbscrew, is called the Yankee stick. See *Composing Stick*.

Scribe. The manuscript copyists were called scribes; a professional or public penman.

Script. A general name for that class of types designed to imitate handwriting. Script type is expensive to make; its long kerned faces, with delicate hairlines, render it fragile. Its use is now very limited except on fine card and society work. Many printing houses do not have script type, but turn over this kind of work to the copperplate engraver, or make a relief plate by photographing a pen drawing.

Second Mark. The double tick " used to indicate geographical and chronological seconds, etc. See *Minute Mark*.

Seconds. Sheets which have been discarded as inferior to the established standard quality.

Section. A sheet of book pages folded ready for sewing; it is usually identical with signature; but often two or more signatures, set one into the other, make a section.

Sectional Block. For mounting electrotypes or other printing plates. It consists of a number of small, hollow, steel and brass sections made on a unit system of sizes. A number of these sections may

be combined to form any size desired, or to fill an entire chase. The brass sections are fitted with small hooks or catches operated laterally by screws. When the electro, with bevelled edges, is placed on the block, the hooks are put into position and, by means of a hand ratchet, are screwed up to hold the plate firmly. See *Patent Block*.

Sectional Type. A style of type in which each letter was made in two parts, the upper half being separate from the lower part. By setting lines of smaller type between the upper and lower parts, the effect produced is of a narrow panel lying across a line of large type. A typographic arrangement now rare.

Section Mark. The old-style reference sign (§), usually kept in one of the top boxes of the cap. case. See *Reference Marks*.

Self-feeding. There are several different types of self-feeding or automatic feeding machines on the market which are used to feed the paper sheets into printing presses, ruling machines, folding machines, etc. The combing-wheel style operates from the top of the pile and combs or runs out the sheets until they reach the guide, when the combing wheel is raised off the sheets and a small roller starts them into the machine. It should be adjusted so as to comb on the margin. On thin or soft paper the combing wheel will sometimes sink into the pile without advancing the sheet, and the mechanism must be closely watched. Another type of pile feeder feeds the sheets by means of bucklers and push fingers. The bucklers are set at both ends, advance the sheet upward and the push fingers shove them forward under drop rubber rollers, which at regular intervals start the sheets into the machine. Unless accurately adjusted on heavy-coated stock, the bucklers sometimes break the paper. Still another style is the continuous feeder, which also has combing wheels. As there are but a few sheets beneath the wheel, an accurate feed of thin or spongy stock is assured. The paper is placed on the feed-board while the press is running, thus saving piling time. By means of air suction the top sheet on the pile is lifted up and fed to the guides where auxiliary push grippers hold it in position until the platen presses the sheet against the type form. Then automatic fingers remove the printed sheet and place it on the receiving board. See *Miller Feeder*, *Dexter Feeder*, and other machines.

Semicolon. (;) See *Punctuation Marks*.

Separatrix. The diagonal stroke used, in correcting proofs, to call attention to the mark in the margin, and to separate the marks when there are several corrections in the same line, etc. Also, a dot placed before a decimal fraction, to separate it from the whole number to which it belongs; the decimal point.

Sepia. (a) A brown pigment prepared by treating the ink of the cuttlefish with caustic alkali, used in water colors, in drawings, and in printing. (b) An ink of this color. (c) A black and white photograph which has been chemically treated to make the blacks sepia.

Serif. The short cross-line or tick at the ends of the stroke in roman letters. See *Type*.

Serigraph. An instrument or tester for automatically testing and recording graphically, or on a dial, the tensile strength and stretch of paper, textiles, leather, films, rubber, etc., under controlled conditions of temperature and humidity. It is frequently combined with processing cabinets for use in determining the hygroscopic properties of materials, for testing the tensile strength and stretch of materials at fixed moisture contents and temperatures and for drying or moistening materials under controlled air conditions.

Serrated Cutting. Separating a roll of paper into sheets by a method which leaves serrated or ragged edges.

Set. To pick up types and arrange them in form for printing. Also the width of a type is its set; the size of a type is its depth up and down its body size. Thus, a 10-point en quad is 10-point body and 5-point set.

Set Close. To thin-space and omit leads. Set open, to wide-space and open out well with leads or slugs.

Setoff. See *Offset*.

Set Out. When any letter in a case has been exhausted so that no more of the copy can be composed, it is set out, even if many boxes still have type. See *Empty Case*.

Set Solid. To set lines of type close together, without leads or other material.

Setting Heads. In bookbinding, to bring the leather over the headband on library books, and to cover the convexed edge of blank books with leather from the edge of the spring-back to the edge of the book.

Setting Rule. A composing rule.

Setting the Stick. Adjusting the knee of a composing stick to the required measure. To set a stick accurately, use 12-point (or pica) lower-case letter m's, of any convenient font, putting the letters in sidewise.

Sextodecimo. Same as sixteenmo; 16mo.

Sextuple Press. A rotary press that prints 48 newspaper pages at each revolution.

Shank. The metal body upon which the letter is cast; as distinguished from the face, shoulder, or feet of the type letter.

Shaved Leads. Those that are made by a method of drawing through a mold which shaves them to exact and uniform thickness the entire length; in distinction from leads made by the old method of casting in common molds, which is a slower operation and produced leads which were more or less imperfect.

Sheet-feed. Feeding single sheets instead of from a roll.

Sheet Guards. Metal straps to prevent paper from coming in contact with ink rollers on flat-bed presses. See *Single-Revolution Press*.

Sheeting. The process of cutting paper into sheets of the required size.

Sheet the Roller. To turn a roller over a sheet of paper (it should be hard, or sized) for the purpose of taking off surplus ink.

Sheetwise. The pages of a sheet imposed in two forms, the forms being printed separately, one on each side of the sheet. See *Half Sheet*.

Shelf-back. The back of the book, showing the title, bands decorations, etc.

Shell. In electrotyping, the term applied to the copper or nickel deposit when taken from the case. See *Electrotype* and *Mold-case*.

Shifting Tympan. An impression surface which shifts automatically. Also called *Traveling Tympan*.

Shilling Mark. The short diagonal stroke frequently placed after a number expressing shillings in English money. It is used thus 6', signifying 6 shillings; or placed between two numbers, 6. 4 signifying 6 shillings, and 4 pence, or 6s. 4d.

Shoe. One or more sheets of strong paper, upon which a page of type is laid when it is desired to put aside. Pieces of stiff cardboard cut a little larger than the type page, are sometimes used for shoes. Old shoe is the term sometimes applied to the hell-box or receptacle for broken type, etc.

Shoofly. On a cylinder press, the frame of short steel fingers between the grippers in front of the feed-board; it supports the sheet as it is drawn around by the grippers, and when the sheet comes around, after printing, rises slightly to run the sheet on to the front delivery. See *Fly*.

Shooting-Stick. An implement used to drive up wooden quoins in locking forms. Iron quoins are made to tighten the form with a wrench or key, without the use of a shooting-stick and mallet. See *Quoins*.

Short Accent. The upturned curve over the vowels, ä, ë, ö, etc. Also called *breve*.

Short And. The sign &; sometimes called the round and; formerly called ampersand.

Short Count. When the numbers of copies of a piece of work, or the sheets of paper, are not sufficient to make the quantity wanted.

Short Cross. The short bar of a large chase; the bar dividing a chase lengthwise is the long cross.

Short Page. When the type matter does not fill it to the same length as its mates, and it has to be filled out with blank material.

Short Take. When copy is divided among several compositors, each has only a few lines to set, or a short take. See *Take*.

Short Run. (a) A job requiring the feeding of a small number of sheets on the press. (b) A short period of operation on a paper-making machine.

Short Twelves. A plan of imposing a sheet of 12mo, in which the pages are laid down in three rows of four each. See *Long Twelves*.

Shoulder. The top of the type body not covered by the letter. More specifically, the space above and below the letter is the shoulder; at the side of the space is called side-bearing. See *Type*.

Shoulder-notes. Side-notes on book pages, when they are at the top of the pages, are sometimes called shoulder-notes.

Show Bill. A large sheet or poster, printed with bright colors, pictures, etc., to post on billboards.

Show Card. A large placard to post in public view.

Shutter. The shutter is an important fixture of the camera. Practically all shutters are automatic in operation. Two distinct types are in present-day use: those that are constructed of two or more closely fitting thin metal leaves which open and close or move across the lens, and those in which a curtain of thin black material with horizontal slits in it moves across the plate or film in the camera. Of the first-named class of shutters there are two types; those having a rotating disk and those with an iris diaphragm belong to one type, and those with single and double valves to the other type. Among the curtain shutters, the focal plane shutter is the fastest, an exposure of $\frac{1}{1000}$ of a second being possible with it. This shutter is used on reflex and press or newspaper cameras. All shutters can be set on an indicator or dial so that the desired exposure may be made automatically. No shutters are employed on the so-called process cameras used in photo-engraving.

Side-bearing. The shoulder on the side of a letter or other character; it gives the space between the letters of a word. Also, on cylinder and job presses, the type-high ledge on each side of the bed; on the former the side-bearings support and steady the cylinder during the impression, and on the latter, they support the roller-ends while inking the form.

Side-head. In book work, a side-head is usually set in the first line of the paragraph. In catalogs, advertising, etc., side-heads are often put in lines by themselves, either at the side of the matter to

which they refer, or at the commencement of a line immediately above.

Side-note. In book and pamphlet work, side-notes are in the margin outside of the type page, and are usually set in narrow measure in type several sizes smaller than the text of the page.

Side Sorts. The infrequently used characters of a font, such as j, q, x, etc., kept in the small boxes at the side of the case.

Side-sticks, Foot-sticks. Strips of wood or metal furniture placed at the side and foot of a page in a chase; against these the quoins are placed for locking up. When old-style wooden quoins are used, the side-sticks are narrow at one end and wide at the other, to form a wedge into which the quoins are driven with a shooting-stick.

Side-stitch. To bind a pamphlet by wiring or sewing the sheets together sideways. See *Saddle-stitch*.

Signature. In book work, a letter or figure at the bottom of the first page of a form, to direct the binder in putting the printed sheets in order in the volume. Signatures guide the binder in folding, insetting, and collating the sheets. They are also of use to the compositor and pressman in identifying the forms and arranging them in proper position on the press. The text usually commences with signature B or 2, A or 1 being reserved for the preliminary sheet, where, however, it is not inserted. The general rule in this country is to use common figures for numbering, although the older practice was to use letters in alphabetical order. This marking of signatures on the first page has been largely superseded by another method. This is to place a mark in the gutter margin between the first and last pages of the sheet. As these pages are side by side, any mark would show on the back of the folded signatures. The first signature has the mark well toward the top, the next signature has the mark a little farther down, and the other still farther down at regular intervals. When the signatures for a complete book are gathered, the back will show a series of these marks in regular order. A missing signature will be noted by the absence of its mark in the sequence, and a transposition or doubling of signatures will show an irregularity in the sequence marks. See *Collating*.

Signature Press. Used in bookbinderies, for pressing together with great force the folded signatures, in order to make the leaves flat and the book as compact and solid as possible.

Signs Used in Printing. Marks used as an abbreviation for a known language; a figure, letter, or other character used technically, instead of the word, according to prescribed usage. In addition to numerous abbreviations, strictly so called, there are many signs employed in various kinds of composition. The most common ones are included in the following lists:

Monetary Signs

§	Dollar or Dollars
cts. ¢	Cents
Gn.	Guinea
£ (English)	Pound or pounds
/ or s	Shilling or shillings
d.	(Denarius) penny or pence
fr.	Franc or francs
c. (French)	Centime or centimes
m. (German)	Mark or marks
Pf. (German)	Pfennig or pfennigs
cr. (Austrian)	Crown or crowns
hr. (Austrian)	Heller or hellers
rub. (Russian)	Ruble or rubles
kop. (Russian)	Kopeck or kopecks
kr. (Danish)	Crown or crowns
öro, öre	Oro or öre
L or l (Italian)	Lira or lire
c. (Italian)	Centesimo or centesimi

Mathematical Signs

+	Plus	∞	Infinity
-	Minus	∴	Therefore
±	Plus or minus	∵	Because
∓	Minus or plus	...	Continuation
×	Multiplied by	√	The radical sign
÷	Divided by	⊥	Perpendicular to
=	Equal to		Parallel
≠	Not equal to	⌒	Arc of circle
≡	Identical with	°	Degree of circle
≅	Congruent to	'	Minute of circle
>	Greater than	"	Second of circle
<	Less than	∠	Angle
∩	The difference between	└	Right Angle
≡	Is equivalent to	□	Square
::	Proportion	▭	Rectangle
∝	Varies as	△	Triangle
≐	Approaches as a limit		

Medical Signs

ãã	(ava) of each	℥	Drachm
℞	(Recipe) take	℥	Scruple
℥℥i	Ounce, one ounce	℥	(Octarius) Pint
℥ss	Half an ounce	℥	Fluid Ounce
℥iss	One ounce and a half	℥	Fluid Drachm
℥ij	Two ounces	m	Minim or drop

Astronomical Signs

Planets

☉	Sun	⊕	Earth	♄	Saturn
☿	Mercury	♂	Mars	♅	Uranus
♀	Venus	♃	Jupiter	♆	Neptune

Phases

☾	New moon	☾	first quarter	☾	full moon
		☾	last quarter		

Zodiacal

♈	Aries, the ram	♎	Libra, the scales
♉	Taurus, the bull	♏	Scorpio, scorpion
♊	Gemini, the twins	♐	Sagittarius, archer
♋	Cancer, the crab	♑	Capricornus, goat
♌	Leo, the lion	♒	Aquarius, waterman
♍	Virgo, the virgin	♓	Pisces, the fishes

Aspects and Nodes

♌	Conjunction	♌	opposition
☐	Quadrature	☐ or ☉	quintile
♊	Ascending node	✱	sextile
♍	Descending Node	△	trine

Ecclesiastical Signs

✝ The Maltese cross is used before the signatures of certain dignitaries of the Roman Catholic Church. It is also used in the service-books of that church to notify the reader when to make the sign of the cross. The ordinary reference mark † (the dagger) should not be used as a substitute.

℞ Response in service-books. The apothecaries' sign ℞ is not an entirely acceptable substitute.

℣ Versicle in service-books.

* Indicates the words intoned by the celebrant.

Silhouette. A portrait, profile, or outlines of any subject represented in black.

Silver Bronze. A fine white metallic powder dusted on an impression made with white size, for silver printing. See *Bronzing*.

Silver Leaf. Metallic silver beaten into very thin sheets or leaves, used for lettering by bookbinders.

Single Phase. A type of alternating current circuit which requires a single current impulse per cycle and requires only two wires.

Simplex Type-Setter. A machine for setting and distributing type, the composing being done by operating a keyboard similar to a typewriter. The machine consisted of an upright cylinder having vertical grooves on its surface the entire length. The type used was regular foundry cast, but each character of the font was nicked different from all other characters, to fit a particular groove in the upright cylinder. This cylinder had two sections, the lower part being stationary, while the upper part, which was the distributing mechanism, revolved intermittingly. In the grooves of this upper part were inserted lines of dead matter in a vertical position. The width of the grooves was made to coincide with the size of type used, and they were a little less in depth than the height of type. The type rested on its side, the face projecting slightly beyond the cylinder. As the upper cylinder moved around step by step it presented the bottom type in each line over a groove which had its shape or "teeth" arranged to match the nicks of the type assigned to it. In this way each letter was delivered to its special groove. The composing was done by releasing the types in required order at the bottom of the grooves. This was controlled by the keyboard, and as each type dropped it was carried on a swiftly revolving disk around to a narrow channel in front of the operator. This line was continuous, and as it advanced to the end of the channel it was divided by hand into short lines and justified in a stationary "stick" in the same manner as ordinary hand composition. This machine was originally known as the Thorne typesetting machine, and was invented by Joseph Thorne and patented in 1880. It was the most successful typesetting machine made up to that time, but since the advent of the Linotype and Monotype, and other line-casting and typesetting machines, the Simplex has been superseded.

Single-revolution Press. A press whose cylinder revolves once for each impression. See *Drum Cylinder Press*.

Sinkage of Chapter Head. To put a blank space, like a line of quotation furniture, at the top of the first page of a chapter.

Six-to-pica. Said of leads, brass rule, etc., before the adoption of the point system. The thickness of leads and rules was indicated by the proportion their size bore to the pica; six-to-pica is approximately two-point; twelve-to-pica, one point.

Sixteenmo. A sheet folded to make sixteen leaves; 16mo, or 16's. See *Octavo*.

Size. A sticky, varnish-like substance, used as a printing ink when the sheets are to be bronzed. Size of this kind is often colored to the color of the metallic powder to be used, as white for silver powder, yellow size for gold powder, etc.

Sizing. A glutinous preparation, made of animal or vegetable fats, used in paper-making to give stiffness to the sheets and to prevent ink from spreading on it. Sizing may be added to the pulp in the vat, or the paper may be coated by passing it through a bath of sizing, when it is said to be tub-sized.

Sizes of Envelopes. Most of the standard sizes of envelopes are here listed:

Commercial

No. 2	 $2\frac{1}{2}$ x $4\frac{1}{4}$	No. $6\frac{3}{4}$	 $3\frac{5}{8}$ x $6\frac{1}{2}$
No. 3	 $2\frac{11}{16}$ x $4\frac{3}{4}$	No. 7	 $3\frac{3}{4}$ x $6\frac{3}{4}$
No. 4	 $2\frac{7}{8}$ x $5\frac{1}{4}$	No. $7\frac{1}{2}$	 $3\frac{3}{4}$ x $7\frac{7}{8}$
No. 5	 $3\frac{1}{16}$ x $5\frac{1}{2}$	No. 8	 $3\frac{7}{8}$ x $7\frac{7}{8}$
No. 6	 $3\frac{3}{8}$ x 6	No. $8\frac{1}{2}$	 $3\frac{3}{8}$ x $8\frac{3}{8}$
No. $6\frac{1}{4}$	 $3\frac{1}{2}$ x 6	No. $8\frac{3}{4}$	 $3\frac{3}{4}$ x $8\frac{3}{8}$
No. $6\frac{1}{2}$	 $3\frac{1}{16}$ x $6\frac{1}{4}$		

Baronial

No. 4	 $3\frac{3}{8}$ x $4\frac{11}{16}$	No. $5\frac{1}{2}$	 $4\frac{3}{8}$ x $5\frac{5}{8}$
No. 5	 $4\frac{1}{8}$ x $5\frac{7}{8}$	No. 6	5 x 6

Card (Open Side)

No. 5	 $4\frac{1}{2}$ x $5\frac{1}{2}$	No. $6\frac{1}{2}$	 $5\frac{1}{2}$ x $6\frac{3}{4}$
No. $5\frac{1}{2}$	5 x $5\frac{3}{4}$	No. 7	 $5\frac{3}{4}$ x $7\frac{7}{8}$
No. 6	5 x 6	No. $7\frac{1}{2}$	 $6\frac{1}{2}$ x $7\frac{3}{4}$
No. $6\frac{1}{4}$	 $5\frac{1}{4}$ x $6\frac{3}{8}$		

Coin (Open End)

No. 1	 $2\frac{1}{4}$ x $3\frac{1}{2}$	No. 5	 $2\frac{7}{8}$ x $5\frac{1}{4}$
No. 3	 $2\frac{1}{2}$ x $4\frac{1}{4}$	No. $5\frac{1}{2}$	 $3\frac{1}{8}$ x $5\frac{1}{2}$
No. 4	3 x $4\frac{1}{2}$	No. 6	 $3\frac{3}{8}$ x 6
No. $4\frac{1}{2}$	3 x $4\frac{7}{8}$	No. 7	 $3\frac{1}{2}$ x $6\frac{1}{2}$

Drug (Open Side)

No. 1	 $1\frac{3}{4}$ x $2\frac{7}{8}$	No. 3	 $2\frac{5}{16}$ x $3\frac{3}{8}$
No. 2	 $2\frac{1}{16}$ x $3\frac{1}{2}$		

Catalog (Open End)

No. 1	6 x 9	No. 6	 $7\frac{1}{2}$ x $10\frac{1}{2}$
No. $1\frac{1}{2}$	 $6\frac{1}{4}$ x $9\frac{1}{2}$	No. 8	 $8\frac{1}{4}$ x $11\frac{1}{4}$
No. $1\frac{3}{4}$	 $6\frac{1}{2}$ x $9\frac{1}{2}$	No. $9\frac{1}{2}$	 $8\frac{1}{2}$ x $10\frac{1}{2}$
No. 2	 $6\frac{1}{2}$ x 10	No. $10\frac{1}{2}$	9 x 12
No. 3	7 x 10	No. $12\frac{1}{2}$	 $9\frac{1}{2}$ x $12\frac{1}{2}$
No. $3\frac{1}{2}$	7 x $10\frac{1}{2}$	No. 15	 $11\frac{1}{4}$ x $14\frac{1}{2}$

Bank (Open Side)

No. 5	 $3\frac{3}{4}$	x $5\frac{3}{4}$	No. 7	 $4\frac{3}{8}$	x $7\frac{1}{8}$
No. 6	 $4\frac{1}{8}$	x $6\frac{1}{4}$	No. 8	5	x $7\frac{1}{2}$
No. $6\frac{1}{4}$	 $4\frac{1}{2}$	x $6\frac{5}{8}$	No. $8\frac{1}{2}$	 $5\frac{1}{2}$	x $7\frac{1}{2}$
No. $6\frac{1}{2}$	5	x $6\frac{1}{2}$			

Scarf and Glove (Open End)

No. 1	 $4\frac{5}{8}$	x $6\frac{3}{4}$	No. 6	 $5\frac{1}{2}$	x $8\frac{1}{4}$
No. 3	5	x $7\frac{1}{2}$	No. 7	4	x $6\frac{3}{8}$
No. 4	 $5\frac{3}{8}$	x $7\frac{1}{2}$	No. 8	 $3\frac{7}{8}$	x $7\frac{1}{2}$

No. 7 and 8 are Glove Envelopes

Visiting Card (Open Side)

No. 0	 $1\frac{3}{4}$	x $2\frac{7}{8}$	No. 1	 $2\frac{5}{16}$	x $3\frac{5}{8}$
No. $0\frac{1}{2}$	 $2\frac{1}{16}$	x $3\frac{1}{2}$	No. $1\frac{1}{2}$	 $2\frac{9}{16}$	x 4

Pay (Open Side)

No. 2	 $2\frac{1}{2}$	x $4\frac{1}{4}$
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Portfolio (Open Side)

No. 1	 $5\frac{5}{8}$	x $8\frac{3}{4}$	No. 3	 $6\frac{1}{8}$	x $9\frac{1}{4}$
No. 2	 $6\frac{1}{4}$	x $8\frac{5}{8}$			

Sizes of Paper. See *Paper Sizes, Ruled Paper.*

Sizes of Type. Printing type has, first, a name indicating its size, and second, one denoting the style of its face. For instance, the type used for the text of this book is 8-point (its size) Caslon Lining Old-style (the foundry name for its face). Formerly there was no uniform standard of type sizes, although foundries generally made types in certain relative proportions, and these sizes were known by arbitrary names. But as each foundry had a standard of its own, the printer who bought from different foundries had no assurance that the bodies of one founder would exactly match those of the same name from another. The sizes of types now cast by American foundries are graduated on a uniform scale known as the Point system. The unit of the system is a division of space called a point (about $\frac{1}{72}$ of an inch), and all type bodies are multiples of and are measured by it. The multitude of type faces made by the foundries nowadays makes it necessary to use several words to name a specific type, but each size is described by its number of points. There are some printing houses where the old sizes are still in vogue—even applied to types of the point system—and the apprentice should familiarize himself with these older names in connection with their corresponding sizes of the point system.

3 -point—Excelsior	16 -point—Columbian
4 -point—Brilliant	18 -point—{Great Primer
4½-point—Diamond	{Three-line Nonpareil
5 -point—Pearl	20 -point—Paragon
5½-point—Agate	22 -point—Two-line Small Pica
6 -point—Nonpareil	24 -point—Two-line Pica
7 -point—Minion	28 -point—Two-line English
8 -point—Brevier	32 -point—Two-line Columbian
9 -point—Bourgeois	36 -point—Two-line Great Primer
10 -point—Long Primer	40 -point—Two-line Paragon
11 -point—Small Pica	44 -point—Meridian
12 -point—Pica	48 -point—Canon, Four-line Pica
14 -point—English	

The smallest size in general use is 5-point (pearl), and sometimes 4½-point (diamond) is used if necessary, but except for special uses, such as miniature editions of books, cut-in notes, piece-fractions, small borders, and special characters, and an occasional word or line that is required to be put into the smallest possible compass, sizes below 5-point are not practicable for any extended use. Agate (5½-point), nonpareil (6-point), minion (7-point), and brevier (8-point), are sizes used mostly in newspapers and magazines for the small type in advertisements. Agate (14 lines to an inch) is the common standard of measurement for newspaper and magazine advertising space, the price being usually based upon the number of agate lines. Ordinary roman types for books and periodicals are made only in the smaller sizes of the list. There are numberless varieties of these faces, some of which require the eye of an expert to distinguish one from another. Some of them are made in a few sizes only, while others are made in more or less complete series from 5-point to 48-point. The irregular sizes of 5½-point, 7-point, 9-point, and 11-point are mostly roman faces, with their companion italics, and a few bolder styles for side-headings and other display in combination with roman of the same body. Type-founders now make almost all new styles of type in graded series from 6-point to 72-point and in some cases even larger. Types adapted to many kinds of work are made in nearly all regular sizes; those having a more limited use are made in fewer sizes; there being, for instance, less need for the smaller sizes of very heavy faces, while those designed for small and dainty work are made only in the smaller sizes of the list. Sizes of job types are graduated by two points up to 14-point (6, 8, 10, 12, 14), with an occasional series having an 11-point or a 15-point size; then 18-point and larger by multiples of 6-point up to 60-point (18, 24, 30, 36, 42, 48, 54, 60). Larger sizes are usually 72-point, 84-point (rare), and 96-point, the largest metal types cast in a mold being 120-point and 144-point. Besides the foregoing there are some intermediate sizes (16, 20, 22, 28, 30, 40-point). All bodies and all widths of types are systematic multiples of a typographic point, and, therefore, may be set together and justified to fit securely. Bastard types are those with faces larger or smaller than is commonly made on the body,

as the face of 7-point on 6-point body, giving the effect of compactness; or an 8-point on a 9-point body, which gives a lighter appearance as if opened with thin leads. Because of this irregularity in the faces of types it is often difficult, even for an expert, to know the body size of type by examining a printed sheet.

Skeleton Chase. A plain iron frame of large size, without cross-bars or dovetail slots for bars. See *Chase*.

Skeleton Form. A form made up chiefly of large blank spaces, with relatively small printing surfaces widely separated, such as might be used for a blank-book page, or a form for printing spots of a second color on a job.

Skeleton Gripper. A long, narrow gripper for job presses, used when only a very little gripping space is available on the sheet that is being printed.

Skeletonizing. Taking a job apart and rebuilding it so that its various parts may be printed in different colors.

Skeleton Letter. A type face in which the lines are very thin and the shapes of letters greatly condensed or unusually extended.

Skiver. The outer or grain side of sheets in which sheepskin has been split; much used and mistaken for sheep.

Slice. A thick, wide metal knife for handling ink, etc.

Slice Galley. An old-style wooden galley, in two parts; used for large pages. The upper part, or slice, on which the type was placed, fitted into a lower tray with ledges on three sides. The slice had a ledge which closed the fourth side when the galley was put together. When the page was tied up securely, the shingle-shaped slice was withdrawn, and from it the page was pushed on the imposing stone. This style of galley has now gone out of use.

Slide. Another name for the movable knee of a composing stick.

Slider Racks. A form of roller bearing, used in the trackways of flat-bed presses.

Slips. The pieces of twine that project from the back of a sewed but uncovered book. They can be slipped up or down, and are fastened to the covers.

Slip-loop. In paper-ruling, made by two ends of zephyr brought together, then looped by bringing the folded end over about one inch. The pen is put into the loop and the zephyr tightened.

Slip Proof. A long, narrow proof taken from the galley before the type is made up into pages or columns.

Slitter. A mechanism for cutting sheets of paper lengthwise as they pass through a printing press or other machine. It consists, usually, of a small disk with a sharp cutting edge which revolves swiftly

close beside another steel cutting edge. The edge of the sheet is presented at the proper point and as it passes along the revolving wheel slips the sheet.

Slop. On a newspaper, in making up, when all the forms are filled with type, the composed matter that is left over is called "slop."

Sloping Fraction. Those made with the diagonal lines, in distinction from those made with horizontal lines. See *Fractions*.

Slow-speed Motor. A motor whose normal speed is from 400 to 800 revolutions per minute.

Slug. (a) A thick lead. In newspaper and other piece work it has a word or figure on it to denote the compositor to whom the matter following belongs. See *Linotype Slug*. (b) In a newspaper composing room, the copy takes are numbered or marked with big letters and figures, as A1, A2, A3, etc., through the alphabet, and up to 99. The type is placed on galleys and the *bank man* handling the galleys puts big metal slugs corresponding to the numbers on the takes just ahead of each section of type. These slugs are called *galley slugs* or *number slugs*.

Slug-Casting Machines. Slug-casting machines are those composing machines which cast slugs, in distinction from machines which cast single type characters. The Linotype, Intertype, Linograph, and Ludlow Typograph are the best-known slug-casting machines. The Monotype and the Thompson Typesetter are type-casting and slug-casting machines. See Article describing each of these machines for further information.

Slur. A blurred impression. Slurring is due to a disturbance of the sheet when the impression of the form is made. On a hand press when the sheet is laid on the form by hand, any wavering may cause the sheet to move sideways; or it may be disturbed when putting on a sheet of paper or card for extra impression, or by carelessly slamming down the tympan before the bed is run under the platen. If the bed of the press is very smooth and slippery, as it often is after handling electrotype forms covered with black lead, a quick motion of the bed, after the sheet and tympan are down, may cause the form to move slightly before it is in place for the impression. On a job press, a slur may be caused by improper adjustment of the platen; it may not be level on its bolts, or the impression may strike hard on one corner or one end. A loose, baggy tympan with too much packing under it may keep the sheet so far up from its impression level that the form will touch it first and push it down some distance before the impression is made; or the grippers may not hold the sheet smooth and firm. On a cylinder press, the gripper fingers may not be fixed evenly and the sheet or some part of it may slip as it is being drawn around for the impression; the cylinder and bed may not be adjusted to move together accurately; the bearers may not be the right height; the packing on the cylinder may be too little, or too much, and loose; or the bands

which hold the sheet up to the cylinder may let the tail of the sheet down on the form before the impression occurs. Slurring may be due to a variety of causes, either defects in the press or in the adjustment of its parts. A form with large open spaces in it is more apt to slur than a solid, compact form. A solid form will, because of the more uniform distribution of pressure, usually leave an even impression on the sheet. A form with a single line of a rule standing alone will need to have the sheet held down smooth and firm against the impression surface, or tympan, and the proper pressure made with precision in order to leave a sharp, clean imprint; the least deflection or unnecessary force will leave a blurred or thickened result.

Small Pica. The old name for the size now known as 11-point. See *Sizes of Type*.

Small Caps. Nearly all fonts of type intended for book work have, in addition to the usual capitals, an alphabet of small capitals. These are slightly larger than the small letters of the lower-case font, and are often used for side-headings, subheads, running titles, and in other places where some variation from the other alphabets is desirable. The quantity of small caps in a complete font is comparatively small, and the typefounders do not include them in the font unless specially ordered. In some fonts the small caps c, o, s, v, w, x, z, are so nearly like the lower-case letters that they are distinguished only by very close scrutiny of both side by side. Occasionally, small caps are marked by an extra nick near the top of the type; why typefounders do not so mark them in all cases and save the typographer much trouble is a query often asked. In copy, a direction to use small caps is to draw two lines under the word, thus.

Smashing. Pressing together folded signatures so that the folds will lay flat. This may be done with a flat-headed hammer or mallet, or on a smashing machine. See *Bundling*.

Smashing Machine. A machine used in binderies for compressing folded signatures to render them more compact for binding.

Smearing. In paper-ruling, made by the rubbing of sheets upon each other when dropping in the lay-boy while the ink is not dry.

Snap-switch. A switch for making and breaking electric currents, with a snap or quick action. Sometimes controlled by the starting of a press.

Soda. Name commonly applied to carbonate of soda. One of the most important chemicals for industrial purposes, manufactured from common salt. When causticised with quicklime it is converted into caustic soda, which latter substance is required for the digestion of fibers in paper-making.

Soda Pulp. Pulp prepared by digesting wood with caustic soda. See *Wood Pulp*.

Soft Packing. See *Hard Packing*.

Soft Paper. That which has a soft surface and body, and little or no sizing, requiring relatively little pressure for printing; news and common book paper.

Softening Punch. A tool with a stippled face, used by pressmen to soften up or slightly roughen the edges of vignettied halftones that have been worn in printing.

Soft-ground Etching. That in which the ground commonly used is softened by mixing with tallow, the design being made with a pencil on a piece of fine-grained paper stretched over the ground. This, when etched with acid, gives the effect of pencil or chalk lines in the printed impression.

Solace. A penalty imposed by old-time printers for violation of shop laws.

Solid Matter. Matter without leads between the lines; with few breaklines it is, in piece work, *lean*.

Solids. In a printing surface, the smooth parts which print full color, as distinguished from parts that are stippled, grained, or otherwise made to print a gray color. The brightest or whitest portions of a picture are termed *highlights*.

Solid Pick. A letter, type or electro, filled up with metal or other hard substance.

Sorts. The letters in the boxes of a case; "out of sorts," short of particular letters; "runs on sorts," when the copy calls for more than the usual number of any letters.

Sort Case. A case for holding extra or special types, etc.

Sort Order. A request for some particular letter or character.

Sort Up. To add sorts or needed letters to a case of type.

Space. The thin metal blanks used to separate words in a line of type. Trade custom designates the thinnest blanks, up to one third of the em, as spaces, and those one-half the em and wider, as quads. The different thicknesses of spaces are named three-to-em (¶), four-to-em (¶), five-to-em (¶), hair space (|), according to their relation to the square, or em quad. To the beginner the difference between spaces and quads is often confusing, as a metal blank that is a three-to-em space of one size of type is exactly the same dimensions as a three-to-em quad of another size of type. Thus, a three-to-em space of an 18-point font is 6 x 18 points, which is identical with a three-em quad of a 6-point font. The difference between the two blanks, however, is in the position of the nick; on the 6-point quad the nick is along the wide three-to-em side, while on the 18-point space it is across the narrow 6-point edge of the blank. When there is a shortage of quads of smaller size, spaces of a larger size may often be used to supply the

deficiency; but, when the matter is distributed, these different spaces and quads should be put with their proper fonts and not scattered here and there throughout the cases in the room. See *High Spaces*, *Low Spaces*, *Quads*.

Space Barge. An English trade name for a small tray with six or more divisions, to hold an assortment of spaces; such as may be used for correcting on the stone or the press. A space barge may often be merely a piece of paper or card.

Space Dots. Periods cast higher than the usual line of the face. They are used between words set in roman capitals composed in classic style of tablets, inscriptions, in titles, etc. For occasional use only and not advisable where there are many words.

Space Rules. Small metal dashes cast on thin bodies, used in occasional small tables, algebra work, etc., to separate words or figures. Brass rules with light faces are now used with better results.

Space Out. To increase the spacing between words, or lines, to make full length, or to cover the specified area.

Spanish N. The letter ñ with a curved line (*tilde*) over it, representing the sound of *ny*, as canon, pronounced *canyon*. Sometimes curly n.

Spatula. A broad flat blade or strip of metal or wood with unsharpened edges and commonly a rounded outer edge and a handle.

Specimen Book. A book or catalog showing the productions of a typefoundry, electro foundry, engraving shop, trade composition house, etc. It is now usually made in the latest, and highest style of the art, and should be carefully studied by every apprentice, to increase his knowledge about materials and the manner in which they are used.

Specimen Page. A sample page; it may be of a proposed book, or to show the use of certain types, borders, etc. In all important work a specimen page is first set in order to decide upon the style, size, and other details.

Split-block Mortise. A mortise which is produced in the wood or block under an engraving by sawing apart the block and squaring it, thus forming a straight-sided framework of several pieces which may be placed around the type lines or masses that are to be printed at the same time with the engravings. The engravings are first removed from the wooden block, the block sawed into as many pieces as necessary, and then the engravings are again fastened to the wood pieces with nails.

Split Fractions. Those cast in two or more pieces; same as piece fractions.

Spoilage. Paper spoiled or wasted in presswork.

Spotting Up. Marking out and putting on patches on a make-ready sheet.

Spring. When a form is locked in the chase and the type and furniture rise slightly from the imposing surface, it is said to spring. This is caused by furniture, cuts, or other material not being perfectly true on the sides, or by improper justification of the matter. It is also liable to occur where there are wide spaces fitted with wood furniture and the lockup is too tight. Spring in the form means that it will not lie solid on the bed of the press, and the form is not in a proper condition for printing. A form may be readily tested, when locked up, by gently pounding it with the side of the fist; a spring in any part will be detected by the difference in sound at the points where it is solid and where it springs. The usual remedy is to unlock and examine the form where the spring occurs; a long line, or rule, or slug, or an imperfect piece of furniture, straightening up lines that are off their feet, or tightening up the quoins in a different order may remedy the defect. Even when a form is in good condition, spring may be caused therein by vigorous use of the planer and mallet which proceeding is unwise and usually results in trouble later. See *Rise*.

Sprinkling. Decorating the edges of books with small dots or specks of color, sprinkled on with a brush.

Spring-Back. A cover that is not fastened entirely on the back of the book, but will show a hollow space when the book is opened; in distinction from a *tight back*.

Springing Pens. In paper-ruling, pens which are set for striking from two heads in one beam, both lifting at a foot-line; the longer pens are set lower and a small cam is used, thus enabling the longer pens to drag until the final lift.

Squabble. Type matter twisted out of shape.

Square Four. One of the simplest methods of imposing four pages. One side is printed, and the sheet is then tumbled (turned from top to bottom) and backed up with the same four pages. The sheet is then cut apart, leaving two complete signatures of four pages.

Square Twelves. A scheme of imposition in which the pages of one side of a 12mo are laid down in three rows of four pages each. See *Long Twelves*.

Squared Up. In speaking of type, squared up means making the lines come even by changing space between words or adding space between letters. Speaking of forms it means putting a try-square around to test its squareness, and if not square, making it so.

Squeegee or Squilgee. A tool having a straight edge, sometimes with a strip of soft rubber, used for smoothing out a surface, squeezing water from a sheet of paper, rubbing down a pasted sheet, etc. It is often in the form of a small roller.

Staggering. In paper-ruling, the vacillation of the pen when striking.

Staining. The edges of a book stained or marbled with colored ink or dye.

Stand. A frame on which type cases are placed; the lower part is usually fitted with a rack for additional cases.

Standard Cost-Finding System. In the fall of 1909, a meeting of employing printers was held in Chicago to consider subjects relating to the cost of production in printing. This meeting, known as the First Printer's Cost Congress, appointed a committee of fifteen, known as the American Cost Commission, to study the subject of cost-finding and to compile a practical system for the obtainment of accurate costs for the various departments of printing. Using as a basis the system compiled some two years previously by the Printers' Boards of Trade of New York, Philadelphia, and Boston, and combining therewith other forms obtained through inquiry throughout the country, the committee finally brought into being a group of recording forms which they named the "Standard Cost-Finding System." This system was founded upon a set of principles adopted by the First International Cost Congress, the printed forms being the instruments through which these principles were put into practice. The Standard Cost-Finding System provides means for the constant recording of time and materials used on an order for printing; also for making daily and monthly summaries of all the factors entering into the cost of printing, in all its branches; the accurate obtainment and spread of all "overhead" and "commercial" cost; the obtainment, monthly, of accurate departmental hour or unit costs; the cost of an individual order of printing; and provides the means for making accurate analyses of all cost elements. This is the official cost-finding system of the United Typothetae of America. Succeeding Cost Congresses and Conventions of the United Typothetae of America have reaffirmed, annually, the principles adopted at the First Congress. In 1920, the Committee on Education of the United Typothetae of America, upon the request of the United Typothetae of America, and the American Cost Commission, revised the Standard Cost-Finding System, bringing its principles and forms into harmony with the best practices and legal requirements of that time.

Standing Galley. A frame with inclined top divided into galley-like divisions for holding type in pages or columns; the divisions are usually lined with zinc or brass and serve as stationary galleys. The lower part of the frame often has case racks, letter boards drawers or boxes for sorts, etc.

Standing Matter. That which is kept from one printing to another, like advertising, notices, or other composed matter.

Standing Press. Used in bookbinderies. See *Hydraulic Press*.

Stamping Press. (a) A power embossing machine which stamps from 1,500 to 1,800 cards or sheets an hour. This press inks the die, wipes the surface, and makes the impression. The die-wiping paper is fed to the wiping mechanism from a roll, the paper coming in various widths. Inking is done from a fountain by means of specially made rollers. (b) General term for die press, seal press, etc. See *Die Stamping*.

Stanhope Press. A hand press invented by the Earl of Stanhope, of London. See *Hand Press*.

Staple Binder. A small machine, for binding pamphlets, documents, etc., with wire staples. See *Wire Stitcher*.

Star. (*) The asterisk; the first in the list of old-style reference marks.

Start. When the leaves of a bound book break away from the sewing thread, they are said to start.

Starts. In bookbinding, when some of the leaves of the book project beyond the others because of not being properly secured in the back.

Statement. A blank form, with printed heading used for presenting a statement of account between a business firm and its customers. It is a common form of job printing. See *Bill-head*.

Steam Printing. An obsolete term, which meant that the printing press was run by steam power—when this method superseded hand power. Later, we have had “electric printers.”

Steam Table. A specially constructed steel table fitted with steam pipes, for drying out stereotype matrices.

Steel Die. A small block of polished steel, upon which letters or other characters are engraved in intaglio. It is employed for fine stationery and card work, and is more expensive than typographic or relief-plate printing. The design to be stamped is transferred to steel and engraved by hand. The etching process is used to a limited extent, but the die must be finished by hand. It is then fastened in the head of a stamping machine. Stiff ink is dabbed into the lines of the design and the face is cleaned off. A counter die is built of bristol board or other materials and the impression forces the stock into the die and takes up the ink remaining in the lines, thus producing an embossed effect at the same time. This process must be repeated for every impression. The work may be done by hand or power, on a machine built expressly for the purpose. The ink used is ground in Damar varnish, and very little, if any, other medium is used except japan dryer. The beauty of the finished work by this process is in the perfect register of printing and embossing, which is done simultaneously, and the high gloss which is made by the thick layer of ink that is mostly varnish. Letterpress embossing in steel-die printing is sometimes done on common typographic presses, by first printing the design

flat; when the ink is dry, the form is run a second time with gloss varnish, and then an ordinary embossing die is put on the press for the final impression. All three impressions must be run in carefully exact register. This is successful for designs that contain little detail or are not too small. See *Embossing* and *Stamping Press*.

Steel Electrotpe. A term applied to the nickel-steel electrotpe by some electrotpers.

Steel and Copperplate Engraving Machine. Much of the copperplate engraving is now done by machine. In this process the plate is first coated with an etching ground and the letters are cut or engraved in the ground by the machine, which works on the same principle as the pantograph. The master letters are placed in the machine and the operator, by following the lines on them, rapidly transfers the letters to the copper plate. After the engraving has been made in the ground, an acid is applied to the lines, which bites out the metal evenly, thus converting the plate into an intaglio engraving. The ground is then removed from the plate; if necessary a small amount of work is done by the hand tool, and the plate is ready for printing. The machine is so constructed that only one size master plate is required and from this the engraved characters may be made in a wide range of sizes, and from the same pattern plate the letters may be extended either left or right, up or down, condensed, or be made to slant at various angles at the will of the operator. The machine is also so constructed as to be available for engraving in the same manner on steel plates and dies and on lithographic stone.

Steel Engravings. A plate of polished steel on which the picture or design is engraved or etched in intaglio; in general practice the method of engraving and printing is like copperplate work, and the results similar. A picture made from a steel plate. See *Copperplate Engraving*.

Steel Furniture. A modern improvement on printer's wood and soft metal furniture, its great advantage being durability, rigidity, and usually lighter weight than the ordinary metal. Made in various styles, for which see dealer's catalogs; also see *Furniture*.

Steel Plates and Dies. These are made by the intaglio process, the printing characters being engraved below the surface of the plate or die. Steel plates are largely used for bank-notes, certificates, bonds, commercial headings, business cards, and other commercial work in which it is desired to obtain the effect of copperplate engraving in longer printing runs than copper will stand. Embossing from steel dies is used for business, professional, and society stationery, address lines, crests, monograms, etc. Steel-die embossing may usually be recognized by its pronounced raised appearance together with its clean sharp outlines. The method of engraving on steel is similar to that of engraving on copper. The design to be printed or stamped is transferred to a small block of polished steel and by means of graver's tools is incised by hand. The etching process is used to a limited extent,

but the plates and dies must be finished by hand. Steel dies are cut or etched deeper than copper or steel plates, the characters to print being first laid out on the metal and then cut in with a hand tool.

Steel Plate and Die Printing. The method of printing from steel plates is the same as from copper plates, except that they are usually run on a power press the same as a steel die, thus making the cost of printing less than on a hand press upon which the copper plates are printed. The process of making impressions from steel dies is known as stamping, or embossing, the two terms being synonymous in this connection. The die is fastened in the head of the stamping machine, and the impression is made by a direct up-and-down striking movement, under very great pressure. Both printing and embossing are done in the same operation. A stiff ink is dabbed into the design and the surrounding face of the die is cleaned off.

Stem (of letter). The main upright or heavy stroke of a letter.

Stencil. A sheet of strong paper or thin metal in which a pattern of designs or pattern of letters or other characters, is cut through in such a manner as to give a general though incomplete representation of the design. It is used by laying on a surface and brushing over with coloring matter. A pattern produced by stencil.

Step. A division of an electric controller, effecting a change from one degree to another of electric energy and giving a corresponding change of speed, e. g., "50 per cent reduction in 8 steps."

Stereotype. A printing plate of metal, cast from a matrix in a mold while melted stereotype metal is poured in. The matrix for a stereotype is made by making an impression of the type page, form, engraving, etc., on a specially prepared thick paper. This special paper, called a flong, is made by pasting together several sheets of strong tissue paper and thick blotter-like paper with a prepared paste. This sheet, while in a soft pulp state, is laid on the form, covered with a felt blanket, and the whole put into a strong press, heated by steam or hot air, and allowed to set and dry. A matrix may also be made by beating the flong on the form with a strong, flat brush. When the matrix is thoroughly dry it is trimmed and placed in the casting box. Stereotypes, for use on rotary presses, are cast in curved shapes, so as to fit upon the cylinder to which they are to be clamped; but flat stereotype plates may also be cast when needed. Stereotypes are now chiefly used by daily newspapers. They are cast on a machine called the Autoplate (which see.) They are not so well adapted as electrotypes for book printing and general commercial work; the coarse quality of the stereo matrix and the soft metal do not compare with the fine wax molding and tough copper face of electrotypes; but the short time in which stereotypes can be made, and their cheapness, make them well adapted for newspaper work. Even on newspapers, the nickeling of stereotype plates is coming into common practice for color work. All stereotypes are first given a layer of copper before the

nickel-facing is applied. Some book-publishing houses are using stereotype plates which have a thin film of copper or nickel, or both, on their face. These stereotypes must be made from new type, and they are then placed in the electrotyping tank for copper or nickel-steel facing.

Stereo. An abbreviation of stereotype.

Stereotype Brush. A special kind of strong flat-surfaced brush for beating a moist flong on to the face of a type form to make a matrix for stereotyping.

Stereo Chase. Extra strong and thick, for locking up forms to be molded for stereotyping; foundry chase, electro chase.

Stereo Flong. The soft prepared sheet of paper used to make a stereo matrix; when it has been molded on the form and dried, it becomes a matrix.

Stereo Metal. In distinction from type metal, stereo metal is softer, containing a larger percentage of lead, a small quantity of antimony, and little or no tin. The standard metal now used for good plates consists of about 80 parts lead, 6 parts block tin, and 14 parts antimony. In mixing these metals, the antimony is melted first, then the lead is added, and the tin last. The composition fuses at about 625 degrees Fahrenheit. (Zinc etchings look very much like stereotype plates to the uninitiated, and apprentices should be careful not to mix zinc with either stereotype or type metal, as a small piece of zinc will spoil a kettleful of otherwise good casting metal.)

Stereotype Press. A machine used for making stereotype matrices. The moist flong, described elsewhere, is placed on the form that is to be molded. This is then covered with a molding blanket, of thick felt, and the form, together with the metal table on which it rests, is moved under a powerful roller which squeezes the flong down on the type page. The roller and the bed or table on which the form rests, are so adjusted that the roller surface and the face of the page will move together at the same speed.

Stet. Written opposite a word on proof, to signify that it is wrongly marked out, and shall remain.

Stick. A composing stick.

Sticker. A small narrow gummed slip, to paste on another sheet or object. Before the days of the Australian ballot in elections, many printers did a lively but brief business in printing stickers for candidates who wished to get their names on as many ballots as possible in use on election day. See *Label*.

Stickful. An amount of composed type that would be set in a stick at one time; about two inches of the column.

Sticking Up. In lithography, the operation of making up the layout sheet by sticking on the transfers. A number of transfers are pre-

pared, which may be either duplicates of the same subject or reproductions of different subjects, and these are carefully arranged on a layout sheet to allow for proper margins; the lines where the sheet to be printed is to be cut are marked, as well as the position of the point dots where the sheet is to be folded after printing. After all the preliminary work is done, the layout sheet with the transfers is put in a transfer press and all is transferred to the printing stone or plate, at one operation.

Stiffener. A thick card inserted in a cover, envelope, or similar wrapper, to protect the package from injury by bending or breaking.

Stipple. A printing surface that consists of dots, instead of lines. The dots may be fine or coarse, to give effects of light and dark. Half-tones are stipple engravings.

Stitcher. See *Wire Stitcher*.

Stitching. To fasten together sheets with thread, twine, or wire, by hand or machine. The different styles of stitching are: *Double stitch*, where two loops of a single thread are fastened in the center of the fold; *Machine stitch*, where a lock stitch is made; *Saddleback stitch*, where the center of the fold is placed across the saddle in the machine and wire staples are driven through and clinched on the inside; *Side-stitch*, where the thread or wire is stitched through the side and tied or clinched; *Wire stitch*, in which the staples are made, inserted, and clinched by a machine from a continuous piece of wire.

Stock. (a) Paper for a job. (b) Half-stuff or pulp ready for the paper machine. (c) Product or material on hand.

Stock Cut. An electro of an engraving, ornament, or other design kept in stock by dealers. It costs less than a special cut, as it is one of a number of duplicates. Typefounders, electrotypers, and engraving houses supply a large line of these.

Stone. The imposing-stone; an iron surface for imposing may sometimes be termed a stone.

Stone Proof. A proof made from a form while it is on the imposing-stone, either locked up or tied up; made usually with a proof planer and a mallet.

Stoneman. One who is chiefly employed in imposing and locking forms or other work on the stone.

Stonework. That which is done on the imposing-stone or table, like making up large pages, imposing book forms, locking up, etc. Before placing a type form on the stone, it should be corrected, properly spaced and leaded, and securely tied up. The surface of the stone should be perfectly smooth and free from grit and dirt of every kind. Pass the hand over it to make sure that there is nothing to prevent every letter of the form from being planed level. Also be sure that there is nothing on the bottom of the type. This is important; if there

is anything under a letter or word to make it stick up higher than its mates, it will be battered in the planing down; if the form goes on the press with the letter still high, the hard impression will batter it still further. Next, place the chase around the form, and put in the furniture. If it is a single page, lay it so that the top line is at your left hand; then place four pieces of furniture around it. Next, fill in with furniture, leaving some space, enough for quoins at the farther side of the form and at the foot of the page. Keep the type form as nearly as possible in the middle of the chase. If there is any variation, let the page be a little below the center up end down. In order to secure an even impression on a platen press, the printing surface should be in the exact impressional center. After the furniture and quoins are properly placed, tighten the quoins with the fingers and work your hand over the face of the form to straighten any lines that may not be exactly on their feet. When the form is pressed together fairly tight in this manner, plane it down carefully—don't hammer it down. Then tighten up the quoins with the key, beginning with the quoin at the foot of the page, No. 1; then tighten No. 3, and No. 2 next. Do not tighten up quoins with great force at first twist of the key; go over several times, tightening each a little at a time. Do not lock up the form tighter than is necessary to make it firm; to twist the quoins with such force as to make the form and furniture spring up from the stone will make it difficult to get an even impression later, with liability to slur, as well as to cause spaces, quads, and other blanks to work up on the press during the run.

Stop. A diaphragm on a photographic lens. The stop, in its simplest form, is a rectangular piece of metal that has a hole which is smaller than the lens. By stopping down the opening of the lens, the picture is made sharper and its detail is improved. The stop is placed either in front or back of the lens if it is a single one, or between the components if it is a double or compound lens. Stops are also used to secure depth of focus, and to control the exposure. Stops are numbered and marked according to one of two systems. In the *f* or *F* system, the chief sizes of stops are: *f* 4.5, *f* 5.6, *f* 8, *f* 11, *f* 16, *f* 22, *f* 32, *f* 45. The number on the stop gives the proportion of the diameter of the hole to the focal length of the lens. In the *U. S.* (uniform system) of numbering stops, the numerals 1, 2, 4, 8, 16, 32, 64, 128 are used. The higher the number on the stop, the smaller the opening in it, and the longer the exposure must be. If one knows what the correct exposure for one stop is, it is easy to compute the correct exposure for all stops under similar light conditions. For instance, if a sharp correctly timed picture can be made by using a *U. S.* 8 stop at an exposure of $\frac{1}{50}$ of a second, a *U. S.* 16 stop will require $\frac{1}{25}$ of a second exposure, because the 8 stop has twice as large a hole as the 16 stop. In photo-engraving, the stop serves the additional purpose of obtaining the proper variation in the size of the halftone dots. In making halftones three different-sized stops are used. These are loosely designated as

the "highlight" stop; the second stop, the "detail" stop, smaller than the first; and the third, the "shadow" stop, the smallest of the three.

Stop Cylinder. A style of printing machine in which the cylinder stops after making an impression, and remains stationary during the return of the flat bed containing the form; then starts with the sheet for the next impression. See *Cylinder Press*.

Stops. The punctuation marks; full stop, the period. This use of the word is rare.

Straight Matter. Plain composition, in ordinary paragraph form, as distinguished from display, or that set in special arrangement.

Strapping. Gluing or pasting to the convex back of a book pieces of leather cut to fit between the bands and to extend about two or three inches on the sides or hinges of a blank book.

Strawboard. A soft, yellowish-brown board. Usually made of straw-pulp and pulp screenings. Used chiefly for backing and blocking purposes.

Striker. A device, usually attached to a ruling machine, which, when adjusted, enables the ruling-pens to drop and lift at a given line. The *Striker Gate* is the shaft with finger blades near the first beam which holds and releases the sheets which are being ruled at intervals. See *Hickok Ruling Machine*.

Stripping. In photo-engraving, the operation of moving and turning the film containing the photographic image from the wet-plate. Because the image is backward on the negative, this reversal must be corrected before printing the negative. The original film of collodion is strengthened by flowing a thin solution of pure rubber dissolved in benzol over the plate. After this solution dries, a second film, consisting of "stripping" collodion, is added. The negative film is cut with a sharp knife outside the limits of the image and then immersed in a weak solution of acetic acid. The three layers are now removed as one, turned, and placed on a new piece of glass.

Stroker. An English trade name for a pressman's bone or metal feeder, or folder.

Stud-horse. Large, black type display, such as used for auction bills, horse sales, etc. Something bolder and bigger than normal in newspapers and other work where small type is necessary.

Stuff. A pulpy mixture ready for the paper machine.

Stuffer. A slip of printed advertising matter, convenient to go into ordinary envelopes and be sent with regular business correspondence or to accompany special advertising matter through the mails. Envelope stuffers are used in this way to take advantage of the full weight permitted by postal rates. Although usually a slip of paper,

a stuffer may be a card, folder, or small booklet, so that it does not call for additional postage on account of extra weight. Also called *Envelope Stuffer*.

Style Book or Style Card. See *Style of Office*.

Style of Office. In order to maintain some consistency of practice in the multitude of details of composition, many printing houses have rules, more or less variable, concerning spelling, compounding, divisions, use of capitals, small capitals, italics, headings, paragraphing, and other matters in which it is desired to preserve as much uniformity as practicable. A style card or style book may be prepared for this purpose or for a certain publication, or a particular kind of work.

Stylus. A sharp instrument for writing, for scratching on a surface covered with a film of wax or similar substance, or for writing on carbon manifold sheets.

Sub. Abbreviation for substitute; a workman who takes the place of another for a short time.

Subhead. (a) A secondary heading or title; usually put in type smaller or less prominent than main heading. It may be in a line by itself, or at the beginning of a paragraph, as a side-head. (b) In the terminology of the paper-ruler, a line printed or ruled in a box-head, above which the general head is printed.

Subscriber. One who contributes to an enterprise, or pays for a book, magazine, or newspaper for a stated term.

Subscription Books. Those sold directly to patrons by arrangement with the publishers or their agents—usually book agents who go from house to house; as distinguished from books on sale at usual stores.

Substance Numbers of Paper. Designating paper according to a substance number is the most recent method adopted by paper manufacturers to standardize the weights of their products. Taking as a computing basis a paper size 17 x 22, that weighs 13 pounds, and calling it Substance No. 13, all other sizes and weights are designated accordingly. If a ream weighs 16 pounds, it is No. 16; if its weight is 24 pounds, it is No. 24; and so forth. The following table shows the actual weights of standard substance numbers:

	Substance					
Size	No. 13	No. 16	No. 20	No. 24	No. 28	No. 32
14 x 17	8½	10	12½	15½	18	20½
11 x 34	16½	20½	25½	30½	35½	40½
16 x 21	11½	14½	18	21½	25	28½
16 x 42	23	29	36	43	50	57
15 x 22	13	16	20	24	28	32
17 x 28	16½	20½	25½	30½	35½	40½
17 x 44	26	32	40	48	56	64
17 x 56	33	41	51	61	71	81

19 x 23	14½	17½	22	26½	31	35½
19 x 24	16	19½	24½	29½	34	39
19 x 26	17	21	26½	31½	37	42½
19 x 28	18½	23	28½	34	40	45½
19 x 30	20	24½	30½	36½	42½	49
19 x 48	32	39	49	59	68	78
20 x 28	19½	24	30	36	42	48
20 x 56	39	48	60	72	84	96
21 x 32	23	29	36	43	50	57
22 x 34	26	32	40	48	56	64
23 x 36	29	35	44	53	62	71
24 x 38	32	39	49	59	68	78
24 x 48	40	49½	61½	74	86	98½
27 x 40	37½	46	58	69½	81	92½
28 x 34	33	41	51	61	71	81
28 x 38	37	46	57	68	80	91
28 x 40	39	48	60	72	84	96
28 x 42½	41½	51	63½	76½	89	102
34 x 44	52	64	80	96	112	128

Substance No. 13 is always charged as Substance No. 16.

Subtractive Color Mixture. In all process-color printing, in which transparent inks are employed, certain colors are printed on top of others, in order to produce additional hues or colors. This operation is called "subtractive" because it subtracts, through color absorption, certain color rays and reflects others from the paper.

Suction. A word used to describe the slightly sticky condition of a composition roller; same as *tacky*.

Sulphate Wood Pulp. Prepared by digesting wood with a mixture of sulphate of soda, caustic soda, and sulphide of soda. Also called sulphite pulp. See *Wood Pulp*.

Sulphite Pulp. Pulp made from wood chips cooked under pressure in a solution of bisulphite of lime.

Super. A cotton cloth resembling cheesecloth, glued and starched, and pasted on the back of sewed signatures, to hold the book and cover together.

Supercalendered. When paper has been given an extra smooth finish or glaze in the calender rolls during manufacture, it is said to be supercalendered. See *S. & S. C.*

Superfine. A term denoting extra-good quality in paper, card, or other material.

Superglazed. A paper with an extra finish.

Super Royal. A size of writing paper larger than royal, 20 x 28 inches. A size of platen press, 15 x 21 inches, is sometimes termed a half super royal.

Superior Letters, or Figures. Small letters cast on the upper part of the body, for reference, etc. Briefly, superiors. Those cast below the line are inferiors.

Supplement. An extra sheet or addition to a newspaper, magazine, or other publication. It may be a picture, a pamphlet, or a broadside, and be uniform with or entirely different from the regular publication.

Surcharged. Something printed or written on a postage stamp to give it a new legal effect, as a new valuation, a place, date, etc. Also applied to postal cards and certificates.

Surfaced Paper or Card. That which is treated with a coating, either white or colored, and highly polished; coated paper.

Swash Letters. Swash letters are those italic letters in which the normal, plainer form is elaborated by curves and other variations suggesting the pen stroke, conspicuously the tail of the K and R. They are best used for occasional places only, preferably at the beginning or end of a line or word; when used profusely or indiscriminately their decorative effect is spoiled.

Swatch Pad. A small pack of paper samples fastened to a heavy cardboard back, used for display or advertising purposes by paper dealers.

Sweated On. The process of taking an original halftone or line-plate and fastening it to a metal base of any desired thickness or height by means of heating to partially fuse or liquify the metallic surface at the point of contact. Similar to soldering.

Syllable. A part of a word, which may be spoken by one effort of the voice; it may be represented by one letter (a vowel) or by a number of letters. In typesetting, the division of words at the end of a line is made between two syllables, never properly in the middle of a syllable.

Sympathetic Ink. See *Invisible Ink*.

Symmetry. Regular arrangement of parts across a given axis, so that a division through that axis will give similar halves. A type design is said to be symmetrical when, after drawing a line through it from top to bottom, each type line is divided exactly in half, thus leaving equal type masses on both sides.

Syndicate Matter. This term has a dual meaning; it may mean composed type or plates, or it may imply copy which is to be placed in type. There are several large syndicates or associations in the

United States which make a business of supplying reading matter of various kinds to newspapers and other publications. Large newspapers invariably receive all syndicate matter in copy form (usually type-written sheets), the date on which the copy may be printed in the paper is indicated on each article; sometimes the date is omitted and the copy is marked "hold for release"; in which case the date of publication is telegraphed or sent through the mail. An article marked hold for release may be published on the date or hour of its release or at any subsequent times. Newspaper compositors usually get syndicate matter whenever they are not working on news or other matter; the galleys of type are properly slugged, marked, and put away until the time for use arrives. Small newspapers receive syndicate matter in plate form, usually in column lengths, which can be sawed apart and used in sections with other type matter, or in full length; sometimes full pages are sent out by syndicate companies. Full-page feature matter is used to a great extent by papers who have not a sufficient number of compositors or composing machines to produce the large number of columns of reading matter that are required each week for their Sunday editions. Special stereotype bases are used for mounting plate syndicate matter, each association having its own style of base. See *Stereotype Metal* and *Bases*.

Tab. The small projection or lip on the edge of an index card or sheet, on which the guide letters, numbers, or symbols are written or printed for easy reference in filing systems.

Tab Card. An index card used in filing cabinets or drawers. It is made of a variety of white or colored card or bristol-board, ruled, or unruled, ranging in thickness from about $\frac{1}{8}$ to $\frac{3}{8}$ of an inch. The standard sizes are 3 x 5, 4 x 6, and 5 x 8 inches, the width of the card varying in proportion to its height. It is customary to have the tabs for alphabetical cards one-fourth to three-eighths of an inch wide. (The tab is the small rounded projection on the top of the card on which the number, letter, name, or any other index mark is placed.) Special machines are used for cutting out tab cards.

Table. An orderly arrangement of topics, with or without figures, in two or more vertical columns; a list, an index, a collection of headings or numbers, a catalog, a syllabus, a synopsis, etc.

Tablets. Sheets of one hundred or more glued together at one or two edges with pulpboard on the back, sometimes covered with manila paper over the binding edge to the back; or with cardboard on the front, the back covered with cloth. Also called *pads*.

Table of Contents. A list or summary of the chapters, with titles, subjects, and page numbers, placed in the front of a book. See *Index*.

Tabular Work. Lists of items in columns, which are sometimes separated by blank spaces and sometimes divided by light ruled lines.

Composition of this kind requires more care than straight matter, on account of the nicety of justification needed to keep the columns in true alignment and to make the page lock up solidly.

Tabbing. To cut a card with an extension for filing and ready reference.

Tachometer. A finely adjusted instrument, used in the paper-making and textile industries. Attached to the paper-making machine, the tachometer will indicate on its dial, or by means of an inked needle on a graph, the speed at which the paper web is being formed and rolled onto a receiving cylinder. The tachometer is also used for reading off the speed per minute and the speed variations of shafts, motors, pulleys, spindles, etc.

Tack. Stickiness, as of a painted, varnished, oiled, or inked surface partly dried. Adhesiveness possessed by a printing ink, due to the use of a stiff varnish.

Tacky. Said of the condition of a printing roller when it has the right degree of stickiness to take up and carry ink.

Tag. A strong paper or cloth label for tying or nailing on packing cases or packages.

Tag Board. A strong yellowish cardboard, used for shipping tags, covers for blank forms, samples, counter sales books, etc. Same as Manila Board.

Tail. The bottom of a page.

Tail-piece. A small cut or ornament at the end of a chapter; the decorative design at the bottom of a page. There are many stock designs available, mostly in the style of an inverted pyramid.

Take. When copy is divided among several compositors, each part is a take.

Take In. To thin-space a line in order to get in a syllable or word. To drive out is to wide-space and put the syllable or word into the next line.

Talc. A mineral substance of different varieties and colors, granular, fibrous or compact, soft, greasy. When powdered it is used as a lubricant for toilet powder, and as an ingredient in clay coating for papers.

Tall Copy. A specially good copy of an edition. In the early days of printing, the sheets of paper, being made by hand, varied more or less in size; often there were differences of an inch or more in the same lot. When the sheets of a book were gathered, those with wide margins and which matched the best were selected for choice copies; some books were tall, some wide, and others had very scant margins. Hence, any specially made book at a high price.

Tapes. Strips of tape used in bookbinding extending over the back and on the boards to strengthen the binding; strips of cloth placed between the covers and ends of a stitched book to strengthen the book.

Tariffs. Printed tables or schedules of rates, charges, etc., for use of railroad and steamship companies.

Tearing Resistance. In testing paper, the point at which a sheet will tear.

Technicolor Process. A method of color photography used for making motion pictures in which the spectrum is divided in half, so that the red hues are made to include the shades of orange and yellow, and the green hues the shades of blue and violet. A special camera takes two pictures at once, by a system of prisms located behind the lens, one picture through a red filter and one through a green filter. The red filter absorbs the red rays and registers the green rays, while the green filter absorbs the green rays and takes the red. The pictures come out "feet to feet," alternating so that in the black and white negative a girl with a red hat and a green dress has a light hat and a dark dress in one view, and a dark hat and a light dress in the next, and so on. In the dark room, a machine perforates the edges of the yellow film, which is the positive, and is then printed from the negative, also in a machine. This machine does not take the pictures in order, but every other one, so that the feet-to-feet pictures are straightened out and then there is one strip standing erect and another upside-down. The pictures are duplicates, except that one contains the red shades, the other the green. These two strips are then superimposed and cemented together. The accurate perforations on the yellow film adjusts them exactly, so that there is no blur, because they are the same pictures taken at the same time. In cementing, a solvent is used that softens the two films sufficiently to weld them together, and then the solvent evaporates. The films are then developed by a process similar to the black-and-white system, the work being done entirely by machinery. After three separate chemical baths, with washings in between, we have a double strip of celluloid with a relief image in gelatin on one side representing red and a relief image on the other representing green. The films are then dyed, one side red, the other side green. The gelatin images take up the dye according to their intensity, and when both sides have been dyed, the films come out in all colors of nature. After the cementing, films are given a waterproof coating, and they are ready for the projector.

Technique. The principles and practice of a craft or manual art.

T. E. G. Top edge gilt.

Telegraph. In news parlance, news or other matter transmitted by telegraph; copy of this nature furnished to the compositor, usually on thin sheets of paper.

Telephoto. A photograph made with a telephoto camera and telescopic lens, producing large images of distant objects.

Ten-Line. See *Six-line*, or *Six-to-pica*. Same definition applies to *two-line*, *four-line*, etc.

Tensile Strength. In testing paper for strength, the weight necessary to apply to a given strip of paper to break it.

Terminology. The peculiar words, or technical terms, with their explanations, used in a science, art, or trade.

Ternion. An old-time bookish term for three four-page sheets set into each other. A *quaternion* is four sheets and *quinternion* five sheets thus arranged. In the early days of printing, books could be printed in forms of one or two pages only, because of the small, rude presses. As a collection of single folded sheets sewed side by side does not make a strong binding, it was the custom to arrange the pages so that a number of sheets nested in each other, like the signature of later times, and these sections were then more strongly sewed. This method of printing booklets and pamphlets has always been in vogue, but the term is now obsolete.

Texoderm. Imitation leather, strong, durable; water, stain, and Croton-bug proof.

Text. The body matter of a page or of a book, as distinguished from titles, headings, notes, extracts, references, indexes, and other auxiliary matter. The word text is also used to describe the Old English or black-letter style of type, probably from the fact that the text of the first book was printed in black-letter. These two different meanings of the word often lead to confusion, as "text letter" may mean any kind of type used for the body of a page, or it may mean a display line set in a black-letter. It would seem that the term in the latter signification may well be discarded.

Text Paper. A high-class, rough-surfaced book paper, frequently deckle-edged, suitable for fine books.

Text Letter. A general term for any style of Old English, or black-letter type, so called because it was used by Gutenberg and the early printers for the text of their books.

Thick Leads. Those over 2-point; thin leads are usually understood as those less than 2-point, being the normal or common lead. See *Leads*.

Thick Space. The 3-to-em of any body; 4-to-em, 5-to-em, etc., are thin spaces.

Thirty. When a telegraphic news dispatch is received, its completeness is indicated by the number 30. Hence, in a newspaper composing room, when thirty is in, it is a signal to close the forms and go to press.

Thirty-rule. A rule or dash line, of arbitrary length, used in newspaper offices at the end of an article, when all the takes have been set. The final or finish-rule.

Thirty-twomo. A sheet folded in thirty-two leaves, making a small-size book, about $3\frac{1}{8}$ x $4\frac{3}{4}$ inches; 32mo.

Thompson Type, Lead, and Rule Caster. A machine for casting type for hand composition, from either Linotype, Universal, Compositype, or its own matrices interchangeable in the same mold in all sizes from 5- to 48-point inclusive, and for casting leads, slugs, and rules in sizes from 2- to 12-point inclusive, in endless strips, which are automatically cut to any desired length as they leave the mold.

Thompson Press. See *Colt's Armory*.

Three-Color Printing. The process of reproducing a picture or drawing in many colors photo-mechanically with three separate printing plates, each plate being used for a different color—that is, one of the three primary colors, red, yellow, or blue. The process begins with making three photographic negatives of the copy, focused exactly alike. Each of these negatives reproduces one of the three color values of the picture. These three colors—yellow, red, blue—are chosen because their mixture in varying proportions will reproduce all the other colors of the spectrum, with little loss to their real values. In making these negatives, colored screens or filters are used between the negative and the copy. For the yellow negative, a color filter is used to shut out the yellow rays and allow only the red and blue rays to pass through; and for the red negative, the filter admits only the blue and yellow rays; while for the blue negative, only the yellow and red rays pass through. On these negatives, the color filters out from the transparent part of the negative, just as black is the transparent part of the ordinary photographic negative. Halftone plates are made from these negatives by the usual process. The yellow plate is printed first, then the red, and the blue last. As a result of printing these colors one over another, the engraved surface of each plate taking on its different parts just the right amount of its color to combine with the others, the picture is produced in its original colors. The process has been developed within the last thirty years, the first plates having been made by Dr. Frederick E. Ives of Philadelphia, about 1880. Much skill is needed in making the plates, and they require more or less manipulation in etching different parts in order to produce correct color values. Expert skill is required also in the printing of three-color plates in order to produce good results—just the right color and quantity of ink, just the right impression, and absolutely exact register. See *Quadri-color*.

Three-line Letter. A large initial letter at the beginning of a paragraph, the depth of three lines of the text.

Three-to-an-em. A space of one-third of an em quad, generally called a three-em space, though that is not technically correct; also called 3-space.

Three-phase. A type of alternating current requiring three wires and requiring three current impulses per cycle.

Three-quarter Binding. Leather back and corners, with paper or cloth sides.

Three-quarter Case. A type case which is $26\frac{1}{2}$ x $16\frac{5}{8}$ inches in size.

Throwing Quads. To play at dice with quads; jeffing.

Throw-off. A lever attachment on a press by which the relative positions of the form and platen can be slightly changed while the press is running so that no impression is made. See *Impression-Throw-off*.

Thorne Type-setting Machine. See *Simplex Type-Setter*.

Thumbnail Cut. Any small cut, of a sketchy style, such as may be used on the margin of a page, etc.

Thumb Index. The notches ranged in order down the fore edge of dictionaries and other reference books.

Ticker Machine. An automatic receiving device, operated telegraphically, which ticks off, or prints stock quotations and news items on a tape or ribbon of paper.

Ticker Paper. A white book paper which is used in rolls for ticker machines.

Ticket. A card of admission; as, a theater ticket.

Tier. As two-tier, three-tier, etc. Each printing mechanism is called a tier when two or more units are built one on top of another.

Tight Back. The covering material which is pasted to the sections of a book after it is rounded and in boards.

Tilde. The small curve on the top of the Spanish ñ. See *Spanish N*.

Time Ticket. A slip or memo. upon which a workman records the time spent on a given piece of work, or a number of jobs. Each department of a printing house has a specially prepared blank for this purpose, and the filling out of records of this kind is now required of all workmen, in order to ascertain the proper charges.

Time Work. That which is paid for by the hour, day, or week, in distinction from piece work.

Tin Printing. Printing on tin is done by an offset process. The impression is made first from a relief-plate or litho stone on to a rubber-covered cylinder, and from this cylinder is transferred to the tin sheet. The rubber takes a clear impression from the original and its elastic surface gives a smooth and true impression on the hard, uneven tin surface. The work is a specialty and is done on specially built presses. See *Offset Press*.

Tin-plate Printing. The use of zinc and aluminum instead of stone for lithographic printing is sometimes so called.

Tintype. See *Ferrotypes*.

Tint. A degree of any color lighter than normal, as when white is added; when the color is darkened by adding black, it is a shade.

Tint Block. An engraved, grained, or flat plate or electro for printing a faint color, either as a background or to fill panels or other parts of a design.

Tipped On. When a sheet is mounted on a larger sheet by simply pasting down one edge. The French word (*volant*) is sometimes used. Also called *Tipping*.

Tissue. A very thin paper of many varieties, usually unsized, nearly transparent; used to cover the face of an engraving or plate in the better class of books. Originally it was called tissue, not on account of its texture, but because of its use in separating the folds of fine silk tissue.

Title. The space between the bands on the back of a book, upon which the title is lettered.

Title Letter. A roman face, of capitals and figures only, slightly heavier than ordinary book letter, originally designed for title pages, headings, etc. Any type face specially designed for titles and headings.

Title Page. The page at the beginning of a book which describes the work, usually with the author's name, publisher's imprint, date of issue, etc.

Token. Half a ream of paper. The term is going out of use. Formerly a token was 240 sheets, but of late years paper has been made in 500 sheets to the ream, and a token is one-half of that.

Tooling. To re-engrave or touch up parts of an engraving with a hand tool; to embellish a book cover by means of small hand tools. See *Blind Tooling*.

Tooth. (a) On paper, that quality or texture on its surface which causes it to easily take ink or other marks; also called "bite." (b) On photographic negatives, a fine varnish put on the film to give the "tooth" needed to take the marks of a pencil for retouching.

Toned Paper. A lightly tinted paper of any color.

Top Cover. The front cover of a book.

Top Sheet. The outside sheet in the preparation of a tympan or cylinder packing; it usually covers the overlays and other make-ready. Also called *draw sheet*.

Tough Check. A smooth cardboard, tough and pliable, which is manufactured in several weights and colors. It is used for tags, ticket schedules, etc., where a strong and durable cardstock is desired.

Tr. Abbreviation for *transpose*. See *Proofreader's Marks*.

Tracing Paper. Paper rendered transparent for tracing purposes by being soaked in a solution containing a mixture of Canada balsam, turpentine, and a trace of vegetable oil, and then hung up until dry.

Trade-Mark. (*a*) In typography, a peculiar distinguishing mark or design placed somewhere on business or commercial printed matter. Trade-marks may be copyrighted, and the exclusive right to their use in them recognized by law. (*b*) Any mark or device affixed by a merchant or manufacturer to his goods, intended to identify, advertise, or distinguish them from goods of another business house.

Transo Envelope. A trade name for an envelope having on its face a transparent panel through which a written or printed address on the sheet inside may be seen. Also called outlook envelope.

Transfer. To take an impression of a form, plate, or drawing and transfer it mechanically to another plate or flat surface. This is done in various ways for many different purposes in printing. The simplest method of transferring an impression is to take a proof of the original on a sheet of smooth paper of good quality, and, while the ink is still moist, lay it face down on the plate or surface upon which it is desired to be transferred. Then place this under pressure as on a hand press, with sufficient force to make the ink adhere to the plate. This is a convenient method when it is desired to make a tint block or color plate for a job. The electro foundries and supply houses furnish blank metal plates for this purpose. When the transfer impression is thoroughly dry, the plate is cut out and engraved, according to the necessity of the design. The plate is first mounted on a block, like an electro. When it is desired to transfer a print or drawing on which the ink is dry, the back of the print is moistened with benzine, or a solution of lye, or some fluid which will soften the ink enough to permit it to offset on the new surface. Sometimes the transfer may be made by rubbing the back of the sheet with a burnisher instead of by mechanical means or pressure. Several methods of printing are based on the transfer or offset principle. (See *Rubber Offset Press*, *Wall-Paper Printing*.) A process of transferring to glass, china, marble, etc., by which the design is made to adhere to the new surface while the paper is dissolved and washing away, thus leaving all the ink or paint of the original, is called decalcomania.

Transfer. In lithography, the sheet or gelatine-like film containing the design that is to be transferred to a printing surface, either metal or stone.

Transfer Cylinder. The cylinder on a press which passes the sheet from one operation to the next.

Transfer Ink. A special ink used in lithographic work; sometimes called tusche. It is usually a compound of lampblack, shellac, wax, soap, tallow, etc.

Transfer Paper. A paper specially finished, upon which designs are printed or drawn in transfer ink, to be transferred to a lithographic stone or metal plate. Also a carbon sheet or similarly prepared paper.

Transpose. To change a letter, word, phrase, etc., from one place to another, as marked on copy or proof; the abbreviation *tr.* is marked on the margin. See *Proofreader's Marks*.

Translucent. Permitting the passage of light partially.

Transparent. Permitting the passage of light fully and freely. Opposed to opaque.

Traveling Tympan. An impression surface which travels with the white paper, unwinding from one roll and winding up on another.

Treadle. A foot lever by which a machine may be operated.

Triple Case. A type case divided into three sections, instead of two like the common cap. case, each having the boxes for holding a font of capitals; used for fonts of lining gothics, and similar fonts of capitals, as well as for special characters, accents, fractions, signs, etc.

Triangular Quads. These are useful sometimes when it is necessary to justify matter beside a diagonal rule or border, or for holding a word or line in a form at an angle. No longer used to any extent.

Tri-chromatic Printing. Three-color printing.

Tripod. A three-legged stand, made in various materials, and in many sizes, used for holding a camera, kodak, or other instrument.

Truck, Single and Double. In modern newspaper offices the term double-truck advertisement is applied to a two-page form of type, which requires a double truck to transport it to the steam table. A one-page advertisement is called single-truck, because it can be wheeled on a single truck. Trucks are rolling tables with metal tops that can be lowered or raised.

Tub-sized. Said of paper that has been sized by passing through a tub or vat. See *Size*.

Tumbled. When a printed sheet is backed up by turning it from top to bottom instead of from right to left, it is said to be tumbled.

Turned Commas. (" ") Used at the beginning of quotations; apostrophes are used at the end. Turned commas are often used to signify ditto in catalog tables and other places where repetition of the words of a top line are deemed unnecessary, thus:

6-point roman type, per lb.	74	cts.
7- " " " " "	66	"
8- " " " " "	62	"

Turned Letter. See *Turn for Sorts*.

Turn for Sorts. When a letter runs short, or there is none in the case, and it will be provided later, another letter of the same thickness is placed in the line face downward, thus (¶). It is the rule in all composing rooms, when a letter has been taken from a live page to put in another, that there should be a turned type inserted to show the absence of the proper letter.

Turning Bars. The bars on a rotary press, set at an angle, to give the paper web a quarter turn—from flat to edgewise.

Turning-in. Bringing the projecting margins of a covering material over the edges of a board in bookbinding. The turned-over portion is the turn-in.

Turps. An abbreviation for turpentine; a word common in British printing houses, where turpentine is used to wash type, cuts, etc.

Turtle. A section of the surface of a large cylinder on the old-time type-revolving press. Newspaper pages were made up on these curved surfaces, the columns running laterally along the cylinder surface. Column rules were thin at the bottom and thick at the top, allowing for a slight curvature from column to column across the top. The bottoms of the column rules extended beyond the face and the ends were fastened in the framework of the turtle; this together with firm lockup at the foot of each column, kept the type in place during its revolution in printing. See *Type-Revolving Press*.

Turtle Plate. A curved stereotype or electrotpe to fill the cylinder of a rotary press.

Tusche. In lithography, the special ink used for writing or drawing on stone or metal; also called *Transfer Ink*.

Tweezers. Small spring nippers for occasional use to pick up type, etc. The handiest thing ever invented for injuring type. An apprentice who thinks tweezers are better than his fingers to pick up type and correct on galleys should be forbidden to use tweezers except under supervision; when they are needed, he should be shown their proper use and carefulness insisted upon.

Twelvemo. A sheet folded into twelve leaves, the leaf being about 5 x 7½ inches; a duodecimo, written also 12mo. A form for printing a sheet of this kind is termed a form of twelves—twelve pages on one side and twelve on the other.

Twenty-fourmo. A sheet folded into twenty-four leaves; written 24mo.

Two-along. Two signatures sewed with fastening on alternate ends of the kettle-stitch.

Two-line Letter. An initial or letter covering two lines of text matter. It should be observed that a letter on a body twice the size of the text is not always two-line on its face; the real two-line, three-line, etc., has a large face and relatively little shoulder.

Two-point Lead. A lead which is two points thick. It is the thickness which is most commonly used in schools of printing. See *Leads*.

Two-phase. A type of alternating current requiring three or four wires and involving two current impulses per cycle.

Two-revolution Press. In a two-revolution press, the cylinder prints while making one revolution and is lifted during the second revolution so as to clear the form during its return journey. This makes it possible to print the same size sheet with a cylinder only half the circumference of the one required on a single-revolution press; and a cylinder half the circumference is only one-fourth as heavy. A smaller cylinder has a sharper curve and is therefore printing a narrower surface at any one instant during the printing operation.

Two-thirder. A workman who is not a full-fledged journeyman; an advanced apprentice, to whom is paid about two-thirds of a journeyman's wage.

Tying Up. To bind together a page of composed type with a string. This is one of the first things the apprentice should learn to do, and he should learn to do it properly. It is not a difficult trick, after a little practice, and probably no other detail of a compositor's work exhibits his habits of carefulness or carelessness more. When the page is completed on the galley, hold one end of the string on the exposed corner (the end of the last line), about one-half the way down on the shank of the type. Then wind the string around the top of the page and down the lower side, till it reaches the starting point; here cross it over the first turn and wind around again, two, three, four, or more times around the page, according to the strength of the string and the size of the page. Each turn of the string should cross the first turn at the corner so as to bind it. With the left hand, this corner of the page should be held securely, while the string is drawn around firmly and evenly, but not too tight. When enough turns of the string are around the page, a loop is formed and pushed in behind the string and the type, just around one corner; this loop is then drawn up tightly at the corner, so that it will hold. The string should be about at the middle of the shank of the type all around the page, and care should be exercised to prevent a loose end from getting under the type when proof is pulled. See *Hancock Page Tie-up*.

Tympan or Tympan Sheet. The sheets of paper, card, cloth, or other material, that cover the platen or cylinder of a press, and on which the paper is placed to receive the impression; also a cloth-covered frame attached to the bed of a hand press. On a cylinder press this feature is usually termed the packing. A soft tympan, consisting of six or seven sheets of common book paper and two or more sheets of soft card or blotter, is used for cheap work of ordinary grades, as it will cushion itself to any unequal heights of the printing form and requires less make-ready than a hard tympan. A soft tympan

will, however, usually wear down the form quicker than a hard tympan that has a careful make-ready. A hard tympan will consist of three or four sheets of smooth book paper and a sheet of hard bristol or pressboard. When the tympan is hard the make-ready should be done with care, cutting out the high parts and underlaying or overlaying the low places, to make the impressions as even as possible all over the printing surface. The top sheet of a tympan should be strong enough to stretch tightly over the under sheets, to hold gages firmly, and to withstand the rubbing and handling it may receive during the run. For short runs of small forms, up to two thousand impressions, a top sheet of common book paper will usually stand the wear, but for long runs the top sheet should be of good manila or other smooth, strong paper. The style of press and its condition, as well as the kind of work to be done, will require many variations, often very slight, in the character of the tympan; these details can only be learned by experience to avoid poor results.

Tympan Paper. A heavy, tough, slightly glazed manila paper, used for top sheets on cylinder and platen presses. It comes in rolls of various widths. See *Top Sheet*.

Typary Composing Machine. A photo-composing machine used in connection with offset and rotogravure printing. Important features of this machine are its type bars and holders, the notches and grooves on the bars serving to guide them from and back to the magazine. The complete alphabet with signs, punctuation marks, and spaces is divided into fifteen groups in which all letters having the same set width are classed; thus fifteen letters on fifteen bars yield 225 characters. The keyboard looks like that of all standard typewriters, but has eighty-four keys, with various shifts. Justification is effected by means of a special bar between each two words, this bar being provided with flat steel springs on one of its sides. On completion of the line the operator switches on the power mechanism, when the following action takes place: The type and space bars are pushed out from the magazine onto a table, and alignment is then effected by means of a steel straight-edge which automatically comes forward and engages in all the notches of the bars and beds them down firmly on the table. As soon as the aligning wheel has run through the line, a small ink roller passes over the type, and a paper roll descends, upon which the impression is made. As the paper roll rises, the spacing for the next line is automatically performed. The time required to assemble, align, justify, ink, and take the impression, and for the platen to return to its first position, is approximately two seconds. In ordinary practice it is quite possible to compose 10,000 letters an hour. The reproduction of the type matter—or of the printed paper roll—is done by the Typon process, which does not involve the use of a camera, the only necessary apparatus, besides the sensitized paper upon which the impression is made, being the ordinary vacuum printing frame.

Typary Photo-composing Machine. A machine used in offset printing. It is a special typewriting machine which writes on paper, producing a line of type at a time. The finished proof is transferred by chemical, photo-mechanical, or photographic processes to the zinc plate, and printed by offset.

Type. Printer's types are small pieces of metal, each having a letter or other character in relief on one end. They are made of many sizes, but all must be of exactly the same length, so that when they are assembled in lines and pages their faces will present a uniform plane surface to be printed from. The character which each type is intended to print is called its face. As there must always be more or less white space around the letter, this face does not occupy all the body, or shank, but is placed so that the printed character will be in its proper position beside its mates of the same font. The groove between the feet of the type is made by breaking off a jet which remains when it is cast. On large sizes the pin-mark often has figures denoting the size in points; sometimes it may have a letter or device signifying the foundry where it was made. The utility of types depends upon their absolute accuracy, and the squareness of each type and of any number of them in combination. They must not only be exactly uniform as to height of face, but their bodies must be so made that when they are assembled in lines and pages by the compositor, hundreds of thousands of them may be locked together by pressure at the sides in a perfectly compact mass, and none be loose and fall out. A type that is cast longer or shorter than its mates is high-to-paper or low-to-paper. A type that is low will print faintly or will not show at all; one that is high will be unduly forced into the sheet. Types are made from an alloy of lead, tin, antimony, and sometimes copper—a composition which, when melted, fills the mold exactly and shrinks very slightly in cooling, leaving a smooth, closely grained surface that is durable enough to give many impressions without breaking down. Hard metal is important, yet it must not be so brittle that types will break when dropped or fine lines snap off when exposed to pressure. Small types are commonly of harder metal than large types. Other materials used with type—leads, slugs, and the backing of electroplates—have a larger proportion of lead and are softer. Large types for show-cards and posters are made of wood of various kinds. See *Wood Type*.

Type-box. See *Turtle*.

Type-casting Machines. See *Typesetting* and *Slug-Casting Machine*.

Typesetting. The casting or manufacture of printing type. For a long time after the invention of typography, typesetting, printing, and binding were included in the general term of printing; printers cast their own types and printed and bound the books. Typesetting became a distinct vocation early in the seventeenth century. Two chief things are required to cast a type—a mold, in which the

body is cast; and a matrix, which faces one end of the closed mold and has in it a depressed image of the letter to be cast. Theodore L. De Vinne always insisted that the mold was the essential part of type-founding, rather than the punch or matrix. The mold is made in two movable sections, which are fitted together in such a manner as to close up before the cast is made and then open sufficiently to release the type after casting. It is made of fine steel and requires skilled work. Owing to the high temperature to which it is subjected, every piece of steel (a mold usually is made of twelve or fifteen pieces), must be carefully hardened and tempered, and allowance must be made for expansion and contraction of its parts in such a manner as not to affect the accuracy of the type which is cast in it. Absolute accuracy in every part is vitally important. Each piece is carefully ground to a velvety smoothness and the parts of each section fastened solidly by means of steel screws. The weight of a mold varies from one to three pounds, according to the size of the type to be made in it. The matrix covers an opening at one end of the mold, and on the opposite end (which is the foot of the type), is an opening through which the melted metal is injected. To insure a solid body and clear, sharp face, this opening, or jet-hole, must be in right proportion to the size of the type to be cast. A type mold is made for a single size of body, but is made adjustable sideways to correspond to the different widths of letters of a font. One mold may be used to cast all the characters of a font, or of any number of fonts of the same body, by simply changing matrices for the faces. Each mold must be not only true for the type body it is to cast, but must exactly agree with every other mold for the same size of body, because, in a large foundry, a number of molds may be used for casting one font of type. As the matrix is the pattern of the face to be cast, it will be seen that it is the really important ~~item~~ in modern typefounding. Type faces are many, and new ones are constantly appearing. With the production of each new letter or character, a new matrix is required, and everyday use of popular faces injures or destroys many others. Matrices are made by different methods. The older method is by cutting the letter on the end of a small bar of soft steel, which is hardened when the letter is perfected, and is then used to stamp into a bar of copper. This *strike* as it is called, is the matrix in the rough. When it is smoothed down around the sunken impression, with its sides turned up and finished, it is ready to be placed into the mold. This method of making matrices has been the one commonly employed for standard faces of body type in large demand, as, after the steel punch is made, it is the quickest way of producing a matrix. The electrotype method consists, first, in securing a perfect pattern of the letter. This pattern may be engraved by hand or by mechanical means, or it may be a perfect type face already cast. A brass plate ($1\frac{1}{2}$ to $2\frac{1}{2}$ inches long, $\frac{1}{4}$ to $1\frac{1}{2}$ inches wide, and $\frac{1}{4}$ inch thick) with a square hole near one end, is then provided, and the pattern letter so fitted in this opening that it will have some space around its face. A number of these brass plates, with their pattern letter so fitted, are then arranged and fastened side by

side in a *flask*. This flask is next entirely covered with wax, except at the square openings in the brass plates. These openings, containing the faces of the pattern letters, are thus exposed, and the flask is then hung on a rod in an electro battery. Here the copper, held in solution of minute particles, is deposited on the exposed portions of the flask until it forms a thick sheet and fills up the spaces between the sides of the square and the patterns. In a few days (often weeks, according to the size of the matrix), the flask is taken out, the wax removed, and the pattern letter withdrawn from its copper bed, leaving a perfect image in copper securely fitted in the brass plate. This brass plate is now an unfinished matrix, and requires to be smoothed off on all sides, reinforced by another brass strip riveted on its back, and finally fitted for the mold. The third method of making a matrix is with a matrix cutting machine, invented by L. B. Benton and used by the American Type Founders Company. In the upper part of this machine is placed a bar of metal composition—the future matrix. Above this, pointing downward at the proper position, is a rapidly revolving hardened steel needle which cuts the design in the matrix. The cutting needle is held in the center of a finely adjusted, movable steel frame. This frame, with its revolving needlepoint, is controlled in all its motions, horizontally, and laterally, by a rod suspended below; by moving the lower end of this rod with the hand over a given diagram all its motions are duplicated on a much smaller scale by the cutting needle above. It will thus be seen that the thing necessary to produce any design in a matrix is a pattern to be placed on the lower shelf of the machine, under the point of the suspended rod. One pattern may be used to cut matrices for several different sizes of the same letter by simply adjusting the machine to the size desired. All these operations in producing a matrix are mechanical, and may be done quickly and economically. There are several things about a type matrix which require skill and accuracy on the part of the expert workmen. The outer surface must be in exact parallel with the face of the sunken letter, so that the face may be absolutely level on the top of the type body. All the matrices of a font, and of all fonts cast in the same mold, must be fitted so that the face is left standing upright, with proper shoulder on each side, and on true alignment with other letters in the font. Knowing that the matrix-fitter, as well as the mold-maker, divides an inch into ten thousand parts and uses delicate measuring instruments which detect the difference between one of these parts and two of them, it may be realized what painstaking precision and minute calculations are needed to make a finished matrix. The matrix and mold being completed, they are then attached to the casting machine. This consists, primarily, of a pot, in which the type metal is kept to a fluid state over a small gas furnace. Above and in the center of this metal pot is a cylinder with a spring attachment, which at each operation of the machine acts as a plunger to force a small stream of hot metal through a side aperture into the jet-hole of the mold. After the casting, the two parts of the mold separate slightly, the matrix is drawn away from the face of the type, the type

is ejected, and the operation is repeated. Cold water or air is circulated around the mold to keep an even temperature and prevent overheating. The matrix for one character only is placed in the machine, and when enough type has been cast, it is taken out and replaced by another, the change requiring but a few minutes. There are several kinds of type-casting machines in use, such as hand, steam, and automatic. The older machine is the hand caster which is operated by a small wheel with a handle attached. This is now used for small fonts of large types, and for casting sorts. Large type cannot be cast as fast as small sizes; the mold must remain closed longer for the metal to cool, it must open wider to eject the cast, and the whole operation is generally more deliberate. Steam casters are operated by mechanical power (originally steam power, thus called steam casters), and, being faster, they are used for casting the smaller sizes of type. When type is cast by the hand machines it is still unfinished, as the piece of metal called the jet, which cooled in the opening of the mold, still adheres to the bottom of the type. This jet is broken off, the types are set in long lines, and fastened in a grooved channel, face down. A small plane smooths away the irregular surface caused by breaking off the jet, leaving a shallow groove on the bottom. The types also have slight burrs and sharp edges which must be rubbed off before they are ready for inspection and the font room. Type cast on the older styles of power machines also required the jet to be broken off afterward; on the later machines this was done by a little device on the machine, though the final finishing of the type is done afterwards by other operations. These operations, when type comes from the machines of the kind just described, are done mostly by hand, with the aid of a polishing stone or a small dressing wheel. On the automatic casting machine, which is the modern method of casting type, the breaking of the jet, dressing, etc., are all accomplished on the machine, the types coming out in a continuous line practically ready for the compositor. Small sizes of type may be cast on these modern machines as fast as one hundred in a minute. See *Monotype*, *Thompson Type-Caster*, and *Ludlow Typograph*.

Type Gauge. See *Gage*.

Type-high. The height of type in America is .918 of an inch. Electros, engravings, and other forms to be printed on a typographic press should conform to the type-high standard. Type-high gages, useful articles in any composing room, are made in a number of styles.

Type-high Planer. An instrument for planing off the bottoms of electro bases and other printing blocks, to bring them to the exact height of type.

Type Holder. A small tool for holding a few lines of type, for hand stamping; such as used by bookbinders for lettering book covers, etc.

Type Lice. In reality, a joke that is played on new apprentices. It was the custom years ago, in many print-shops, to call the appren-

tice over to a galley or stone on which stood some dead type that had been thoroughly soaked with water. The lines of type would be partly separated; the apprentice told to look sharply and lean directly over the type. The compositors would then push the lines of type together quickly, causing the dirty water to squirt into the apprentice's face. He saw the lice!

Type Measure. A strip of strong cardboard, wood, or steel, having its edges marked with scales indicating ems of type sizes; usually only sizes up to pica or 12-point are given. For measuring composition.

Type Metal. See *Type*.

Type-revolving Press. A machine in which movable type, locked up on turtles, was fastened to a large cylinder and this set in motion to make an impression on another cylinder on which the paper was held. Between 1847 and 1890 the greatest newspapers of the world were generally printed from types. The making of stereotypes for printing daily papers had not then been introduced, and there was no method of duplicating forms except by the laborious process of setting by hand; and although the cylinder press was a great advance on the hand press, the single-cylinder machine was not fast enough for the rapidly increasing circulation of newspapers. By fastening the type on a huge cylinder and then arranging around it four, six, eight, or ten small impression-cylinders, with ink rollers, each revolution of the large cylinder, with its type form, produced a corresponding number of copies. In this manner large editions were printed quickly, but the method was cumbersome and the machine occupied a great deal of room. The invention of the web press, with its curved stereotypes and a roll of long paper, soon displaced it. See *Turtle*.

Typesetting Machine. An apparatus for composing type mechanically, instead of by hand. The term is loosely applied to all machines which produce composed reading matter. The Simplex machine (see *Simplex Type-Setter*) is a typesetting and distributing apparatus; the Monotype (see *Lanston Monotype*) casts individual types and composes them in justified lines; the Linotype (see *Mergenthaler Linotype*) assembles matrices at the side of a mold and casts the complete line in one piece, or slug. The first patent for a typesetting machine was filed in 1882, by William Church, of Boston, who was at that time in England, where the patent was filed. Since then various other persons have studied the problem of substituting machinery for human hands in typesetting, and many machines have been invented, and discarded as impracticable. There was little difficulty in making an apparatus that would set type; the problems of justifying the lines and distribution seemed to be the chief obstacle. In the Simplex, setting and distributing are successfully done, but the justification of lines is done by hand work. This machine is now obsolete.

Typewriter. A desk machine for writing with type by the touch of an operator's fingers on a keyboard. The impression is made by striking a key, which forces the type onto an inked ribbon.

Typewriter Type. Made to imitate the work of typewriting machines. Its peculiarity is that every character and space is the same width, and every line will contain the same number of pieces. The printing of imitation typewriter letters is a specialized line of work in many shops and results are produced in many ways. The ribbon-face effect may be produced by using a special stipple-faced type, or with ordinary type faces by interposing a sheet of fine muslin between the form and the sheet to be printed.

Typewriter Paper. Papers, generally bonds, linens, and light-weight writings, cut to sizes for convenient use on typewriting machines.

Typotabular System. A plan for composing tabular or blank work in which the horizontal and vertical rules join so perfectly that no gaps are perceptible. The system consists of special type, rules, and a mass of units called typotabular squares, cast on six-point body, the top of each body being in the form of a four-sided pyramid. When these units are assembled, V-shaped channels are formed into which rules can easily be slipped. The type used in this system is cast to unit width so as to be self-spacing.

Typographer. A printer; specifically, one who prints from movable types. Often abbreviated to *typo*. Moxon said: "By a typographer I do not mean a printer as he is vulgarly accounted, any more than Dr. Dee means a carpenter or mason to be an architect; but by a typographer I mean such a one, who by his own judgment, from solid reasoning with himself, can either perform or direct others to perform from the beginning to the end all the handy-works and physical operations relating to typography." The word *typographer*, in modern usage, is generally restricted to printers of exceptional ability or to those who have become more or less famous as master craftsmen.

Typographia. Relating to typography and kindred subjects. This word has been used as a title for books relating to printing and as the name of a society of printers.

Typographic Numbering Machines. Typographic numbering machines, so called to distinguish them from other forms of numbering machines, are designed to be locked up in a form the same as type, either with or without type matter. Machines of this character are used with success on both cylinder and platen presses. The printing face of the figures is exactly type-high, the "No." plunger being slightly higher to furnish the movement necessary to revolve the wheels. As the impact of the press takes place, the plunger is depressed to a level of the figures, and upon being released, the succeeding number is brought into printing position, ready for inking. For general

use, and for most jobs, typographic machines are made to number forward; that is, from 1 up, but machines may be obtained which number backwards; that is, from the high number down. In machines numbering backwards, the drop ciphers do not disappear automatically, but must be depressed by hand if not desired. In machines numbering forward, the drop ciphers bring themselves automatically into printing position when required. The typographic numbering machines are manufactured in almost an endless variety suitable for almost every requirement. For certain classes of work, such as cash sales books, machines are made to number 1 to 50 or 0 to 99 and automatically repeat. Other machines are specially designed for such work as numbering church envelopes, railroad tickets, theater tickets, trading stamps, transfers, ice coupons, stock coupons, way bills, money orders, etc. The use of numbering machines is still in its infancy and few printers realize what results can be obtained by giving the matter of numbering machines some little study. One particular item is the use of skip wheels. Skipping wheels, as the words imply, are unit wheels which will skip certain numbers, in printing. Skipping wheels are interchangeable with regular consecutive unit wheels in all standard machines. Skipping wheels are required and may be used on any jobs where there are two or more forms on the same page to be numbered consecutively. Checks, for instance, are most frequently numbered "3" on, so that in order to have them numbered consecutively when bound, the numbering machines must skip "3." On the first impression of a check job, "3" on, the top machine will print number "1," the second machine will print number "2," and the lower machine will print number "3." On the second impression the top machine will print number "4," the second machine number "5," and the lower machine number "6," and so on. Stubs may be numbered in the same way at the same time by using three additional machines. When the job is finished the skipping wheels skipping "3" may be removed and any other skip wheels or regular consecutive wheels inserted in their place. Skip wheels can be used on machines numbering backward, but this feature should be mentioned when ordering a numbering machine.

Typography. The art or process of printing from movable types. It is the method by which the greater part of the world's printing is done. It has great advantage over other methods because of the cheapness of its materials, for the rapidity with which it may be adapted to many forms, for the ease with which ink may be applied to the printing surface, and for the relatively little force needed to make an impression. Also called letterpress printing.

Typographical Union. See *Unions*.

Typogravure. A trade name given by a firm of French picture publishers to a special kind of copper relief-plate halftone pictures.

Typometry. A method of setting maps or diagrams with movable types. See *Map Type*.

Typothetae. The United Typothetae of America or a local association of employing printers affiliated with the United Typothetae of America. (See United Typothetae of America.)

U. U and V were for a long time merely different forms of the same letter, like I and J; the V being originally the form used in Roman capitals and the U or u the cursive or pen-written form. It is comparatively recent that the two forms have been used to express different sounds. Language makers and printers of the sixteenth and seventeenth centuries realized the confusion made by the use of one form to represent separate sounds, as we use them now. This modern distinction between the letters explains their location out of the usual alphabetical order in the printer's cap. case.

Ultramarine. A beautiful and durable sky-blue color, made from the mineral lapis lazuli. Artificial ultramarine of commerce is made by grinding together and burning a mixture of clay, carbonate of soda, sulphur, rosin, etc. Used in making printing inks.

Unbleached. The term is applied to pulp or paper which is in its natural state, or unbleached; as kraft or wrapping paper.

Uncials. A style of pen-written letters in early Latin manuscripts. They are a combination of the old capitals and the newer minuscule or small letters, in use before small letters had been developed into the easier-made forms which are now familiar. The uncial letters were in many quaint forms, which sometimes are copied by designers and letterers of the present day. Probably so named because the letters were all of one size and drawn between horizontal lines an inch apart; uncial, Latin inch.

Uncut. Referring to the leaves of a book or pamphlet, means that they have not been trimmed; when the bolts or folds have not been cut, as with a paper knife, they are unopened.

Undercutting. In photo-engraving, when a zinc plate that has been dusted with rosin or "topping powder," which has been burned in, is placed in a solution of nitric acid, the metal is eaten away where it is not protected, which is as it should be. But sometimes the acid eats under the "topping powder" or top and injures the plate. This is called *undercutting*.

Underscore. To draw, or print one or more lines beneath letters or words for emphasis, etc., thus: UNDERScoreD or OVER-SCORED.

Underlay. A piece of paper, cardboard, or other substance placed on the bottom of a form, to bring it up to proper height for printing. Underlays are necessary when the face of a worn type, ornament, rule, or cut is not so high as the true level of the form. A weak place in a form may be given more impression by an overlay on the tympan,

but if the part is very low it should be brought up by an underlay in order that it may get its proper inking when the rollers pass over it. Underlays, as well as overlays, should be attached in position with the smallest quantity of paste that will keep them in place. Care should be exercised in placing an underlay exactly on the part that is to be brought up; to let it touch an adjoining letter or rule that is already high enough will seldom remedy the defect, as the relative height of the two parts will still be the same, and while the low part is brought up to the required height, the adjoining part may be too high. In case of cuts or other blocks that are not mounted with care it is well to test them before the form goes to press and have them made the right height. This can easily be done by placing the cut on an imposing-stone between two large types and then laying a straight-edge or brass rule across their face to note if the cut is low or high, or by slipping a type-high gage over the cut. There are a number of devices for testing and rectifying printing plates and bases. (See *Hacker Plate-Gauge and Rectifier*.) A soft wood base, even if it seems the right height in the form, may need an extra underlay when it gets on the press and is subjected to the necessary pressure for printing. When a large cut or plate is hollow in the center it may be taken off the base and an underlay placed on the back of the plate itself and the plate fastened on the base again. See *Overlay*.

Under-run. (a) In printing, when the number of copies produced is smaller than the order calls for. (b) In paper-making, when the quantity produced by the machine is less than the amount ordered, there is said to be an *under-run*.

Uneven Page. The odd-number page or folio, 1, 3, 5, etc., as distinguished from the even page, 2, 4, 6, etc. See *Odd Folios*.

Unions. Societies of journeymen printers and others in the same line of work, organized in many cities. The compositor's society is known as the International Typographical Union, having its headquarters in Indianapolis. The present society dates from 1869, having been preceded by the National Typographical Union, organized in 1852, and that again by the Printer's National Union in 1850. It is the oldest and one of the strongest trade unions in America. A typographical society existed in New York in the year 1795, answering some of the purposes of a union, and in 1800 it prepared a scale of prices. It died out before 1805, and the New York Typographical Society, then a trades union, succeeded it in 1809. Philadelphia had a society in 1802, Washington in 1814, and Boston and Albany very early; but these societies, although having the same objects, did not organize in an international way. The International Union, representing mainly journeyman compositors, but embracing newswriters and mailers, is governed by an Executive Council, which is made up of the president, first, second, and third vice-presidents, and the secretary-treasurer of the International Typographical Union. This body adjusts all issues which have failed of adjustment in subordinate unions,

with the right of appeal to the annual delegate convention, which is a court of last resort. While local autonomy largely prevails, measures of prime importance must receive the sanction of the international body before they become legal. The jurisdiction of the International Typographical Union embraces the United States and all its colonial possessions, and Canada. Traveling cards are issued to members who wish to go from the jurisdiction of one local union to another, and they are subject to local regulations and privileges. It maintains a home for aged or permanently incapacitated members at Colorado Springs, Colorado, the first institution of its kind to be wholly supported by a trade union. This union is also the pioneer in substantial life insurance features and a pension system. Workers in pressrooms are organized in the International Printing Pressmen and Assistants' Union, which has local unions throughout the country. Closely affiliated with these unions in the larger cities are those of the allied trades, such as pressmen, feeders, stereotypers, electrotypers, engravers, binders, etc., and in the more important centers of the industry these interests are joined in allied printing trades councils.

Unit. A given standard of measurement; thus, the point is the unit of measure for type size; pica (12 points), the unit of measure for type lines, pages, length of leads, brass rules, size of quad and metal furniture, etc. The monotype unit is one-eighteenth of the "set" em of the body.

United Typothetae of America. The official trade association of the printing industry in North America and made up of some three thousand employing printers in the United States and Canada. It is one of the oldest trade associations in America and was organized with the following objectives: protective, educational, engineering, administrative and financial, production, marketing, and ethical. The association exercises supervision over local groups of employing printers in various cities and administers through them various constructive services. The association is not operated for profit, and revenue derived from membership dues is expended in promotional activities. Members of the United Typothetae of America in cities where local associations, called Local Typothetae, are not maintained, are classified as members-at-large and draw upon the international headquarters for their services. A staff of experts in the various services administered are employed for that purpose. (See *Typothetae*.)

Unitype. See *Simplex Type-Setter*.

Unit Type Cabinet. An arrangement similar to the sectional book cases. Unit type cabinets are built in sections about 12½ inches high, holding eight or ten cases. There is a base piece upon which it rests and a cap piece on top. Any number of the sections may be put together to provide room for additional fonts as needed. These cabinets also have cases of different depths to provide for fonts of different sizes; very shallow cases for job fonts of small type, and other cases of various depths, some being extra deep, to give room for large fonts.

Universal Base. A style of metal base, made in one piece or in sections which may be placed together, and upon which electros, stereos, and other plates may be mounted type-high for printing; interchangeable base. See *Sectional Block*.

Universal Press. A style of platen job press originally invented by Merritt Gally, of New York, about 1869. It differs from the Gordon, Golding, and Prouty styles of platen presses in several features; its frame is more compact and strong, and is not so high from the floor; the bed is stationary and in a perpendicular position, and the impression is given by the movement of the platen drawn by two strong side-arms at an exact right angle to each other. It has a distinctive inking apparatus, which, together with its strength, makes it well adapted for work requiring good ink distribution and a heavy impression. Because of its strength it is much used for embossing work. There were formerly two makes of this style of press, one known as the Gally Universal and the other the Colt's Armory or National, and both were made in several sizes, ranging from 10 x 15 inches to 14 x 22 inches inside chase, for printing. Other styles and larger sizes of these machines are made especially for embossing, stamping, creasing, and cutting, printing on wood, and for other purposes. All former makes of the Universal style of press have been superseded by the Thompson Laureate Press built by Thompson National Press Co., Long Island City, N. Y.

Unlock. To loosen up a form by turning or moving the quoins.

Upper Case. The capital case.

Unsize Paper. See *Size*.

Upright Mitering Machine. For shaving rules, etc. It is operated by moving the knife up and down with a lever; in distinction from the rotary style machine.

Up. A word which is used with a qualifying numeral, as two-up, three-up, four-up, etc., which signifies that a job is to be printed from two, three, or four forms, on a single sheet, at one impression. See *Gang Printing*.

Upright Page. One that measures less sideways than it does up and down; the usual shape of a book page, as distinguished from the oblong page, which is wider than its height.

U. T. A. The abbreviation for the words United Typothetae of America.

V. This letter is the older form of the character U, and for a long time was used as an equivalent to it. This form is still sometimes used for U in old-style printing and lettering, as in titles, tablets, inscriptions, etc., where it is desired to give classical, old-style effect. There seems to be little reason for using it for U in modern printing. As a roman numeral V stands for five or 5. See *U*.

Vandercook Rigid Bed Presses. A roller series of rapid proof presses, made in many sizes and different models, for hand-inking, or with automatic inking carriage attachments. The sizes range from 10 x 24 to 14 x 24 inches in one style and from 17 x 25 to 25 x 32½ in another style. In taking a proof, the inking carriage is moved by a light push of one hand over the form, coming to rest within the cut-out portion of cylinder; a sheet is laid on the inked form, and the cylinder rolled over once. The operator who acquires from repeated practice the knack of making each right and left motion rapidly and accurately, will show extraordinary speed in the volume of printing done. Another style of Vandercook press is the Composing Room Cylinder which is designed for printing large forms, and it affords every function of the regulation cylinder press, in newspaper ad rooms, and plants specializing in advertisement composition. The bed of the press is stoutly ribbed to stand the strain of large forms under necessary heavy impression. The weight of the bed alone for the 25 x 25 machine is 750 pounds, and for the 17 x 25 the weight is 500 pounds. The entire bed, bearing, and rails are cast in one piece, and planed in one setting—giving a type bed that is perfectly true with the impression rails, and effects smooth running as well as uniform impression over the entire printing surface. The Vandercook Truss Proof Press is a comparatively late model and is a hand-inking press of precision, with ground bearings and cylinder. It will print anything within its capacity of 13 x 18 inches, and may be recommended for proving job forms and made-up pages of book and catalog matter. It is large enough for the majority of advertisement proving in newspaper, magazine, and trade plant composing rooms. A device is furnished so that proofs of color forms and process plates may be taken in perfect register. Full 24-inch galleys may be proved in two impressions—by printing one end, then moving the galley without disturbing the sheet, and printing the other end. See *Proof Presses*.

Variety. In design for printers, an intermixture of elements in a design different in form or color and not arranged symmetrically.

Varnish. An oily liquid used as a vehicle in mixing printing ink. It is made in many grades of quality and consistency, the finer kinds being made of linseed oil, and rosin oils used for the cheaper grades. Reducing varnish is used to thin out ink; gloss varnish will give a glossy effect when it dries after printing. See *Printing Ink*.

Vegetable Parchment. A specially prepared paper, resembling parchment, made waterproof and greaseproof, partially transparent, and strong; used for wrappers and coverings, for food jars and similar purposes. See *Parchment*.

Vellum. A kind of paper made from the skins of calves, of finer quality than parchment. In the trade genuine vellum is called classic vellum, to distinguish it from imitation paper or vellum, which is made from high-class rags that have been specially treated. Used for bindings and for fine special editions and documents. See *Parchment*.

Vellum Finish. Paper or cardboard made with a surface that looks and feels like vellum; the smooth, natural surface of a finely prepared leather.

Verification. Inspection of sheets for imperfections in book-binding.

Vermilion. A beautiful red color, toning to orange, used as the proper accompaniment for black ink. Vermilion pigment is the sulphid of metallic mercury, and as sulphur and copper react strongly on each other, when ink of this kind is used for printing with electrotypes there are liable to be unsatisfactory results, especially on long runs; the color will become dark, and the copper face eaten away. Type forms or nickel-faced types will obviate this trouble. Vermilion is also made from the cochineal insect—a sort of worm-dye.

Versicle. The sign used in religious books.

Verso. The left-hand page of a book; back or reverse side of a book cover. See *Recto*.

Victoria Press. The German adaptation of the Universal Press.

Vignette. Before the day of halftones, the term vignette was applied to little woodcuts that precede the title page or were used to embellish initials, and as chapter heads and tail-pieces not enclosed within a definite border. These cuts contained garlands, festoons, trailing vines, etc., hence the name vignette. A decorative or illustrative tail-piece. The term is now generally applied to halftone plates, finished so that the background screen fades away gradually and emerges into the surface on which the print is made. Type can generally be placed very close to the sides of vignetted illustrations, as much of the space occupied by the vignetted portion can be considered as blank space. Judgment must be used in the placing of type matter below or above such illustrations, as too little space takes away the appearance of foreground and sky. This applies particularly to scenic subjects.

Virkotype Monograms. An outline type for forming monograms. The Virkotype characters are imitations of the monogram letters used by copperplate engravers, and can be used advantageously on letterheads and envelopes.

Visiting Card. A calling card, or a small card on which is printed the name of a person. It is also engraved. Some visiting cards also bear the address of its owner. The card is used for formal and informal purposes in social life.

Volume. Originally a roll of parchment or papyrus; a book; a collection of leaves, numbers, or parts bound together to make a book.

Voltage. The potential or pressure under which the electric current flows. The pressure is measured in units called volts.

W. This is one of the newer additions to the alphabet, having been introduced in the eleventh century. The first form of this letter was two V's, thus VV (double u), V being the original shape of the letter we now call U. See *U* and *V*.

Wall-Paper Printing. Like other classes of printing, this was formerly done by hand methods, either by the use of engraved blocks or by stencils. Some special kinds are still produced in this way. Common wall-paper is now printed on large cylinder machines, in much the same way that daily newspapers are printed. The real printing, however, must be preceded by an operation which applies the tint or "ground" to the surface of the paper. This is done by running the web through a series of brushes which lay the moist ground upon which the design is to be printed. This moistening of the paper requires a special drying process, which carries it in extended fashion for long distances over a series of steam-heated pipes. The heat dries the paper rapidly as it is carried along, and it is then rewound loosely in rolls or run directly into the printing machines. The printing surface is a large cylinder on which the paper is carried to receive the various colors of the design. By the side of this large cylinder are small cylinders on which the engraved blocks or plates, or other printing surfaces, are mounted, each small cylinder having an inking apparatus for the particular color which it is to print. The cylinders are adjusted and geared so as to revolve and print one color after another, in accurate register, upon the paper as it passes around the large cylinder, each revolution of which produces a given length of paper printed in several colors. Wall-paper is also printed by the offset or transfer method. In this process the large impression cylinder has a transfer composition blanket. The small cylinders, which are geared around the large one, each printing a separate color, leave their impressions, not on the paper but on the composition blanket. As the main cylinder revolves it receives in turn the various colors of the design. An extra impression cylinder, also adjusted close to the main cylinder, carries the sheet of paper to receive this composite color impression; that is, printing all the colors on the paper simultaneously at one impression. The advantages of this latter method are claimed to be a pleasing softness in color effect, exact register, greater speed, and less wear on the printing blocks or surfaces because of the composition surface on which they leave their impression. The colors used for wall-papers are more like paste than the stiff typographic inks, and they contain more or less glue or a similar sticky substance. The work has many special processes applied to the production of different kinds of goods.

Wallet Flap. A style of envelope in which the flap is made wide and without points, in the shape of the flap of a wallet. See *Gothic Flap*.

Washburn Lead and Slug Cutter. A small hand cutter for compositors, make-up men, and stonemen, which can be kept on the case, make-up stand, or stone, obviating the necessity of making trips to the saw-trimmer or bench-cutter. The cutting knives are operated

by a system of compound leverage, and this is said to multiply the pound pressure sixty-one times. This little tool has a gage attached to the lower jaw, similar to that of any lead or slug cutter.

Wash Drawing. A drawing made in sepia, India ink, or transparent colors, in which the colors are washed lightly and evenly over the surface, as with a brush; used for architectural drawings, machinery, industrial designs, etc. A style of picture adapted for reproduction by halftone engraving process.

Washington Hand Press. A common style of iron press, much used for pulling proofs and similar work. Its general structure and operation is similar to that of the old wooden hand press, but its mechanical principle and great strength of impression, imparted by a simple arrangement of knuckle-joint and levers, make it a most effective machine. It has been made by several firms.

Waste Leaves. (a) The outer leaves of tight-joint letterpress books, which are removed before the joint material is pasted to the board. (b) The outer leaves of account books which are made into hinges.

Watermark. The faintly marked figure, letter, or design in the fabric, usually not noticeable except when the sheet is held up to the light. The watermark in a sheet of paper is formed while in a state of pulp, when a raised design or pattern made of thin wire worked into the required shape is fastened upon the surface of the wire which forms the mold. The layer of fibers over every portion of the design is thinner than the surrounding layer which forms on the surface of the mold in the ordinary way, and the design appears as a translucent pattern in the dry paper. The watermarks used by early paper-makers have given names to several sizes of paper, like foolscap, pot (English), crown, post, elephant. The use of watermarks has greatly increased in recent years, as it is equivalent to a trade-mark for papers of known quality, and a ready means of identification.

Waste Sheets. The extra sheets, trial sheets, or spoiled stock, used in making ready a form on the press, in binding, etc.

Waterproof Paper. Various sorts; (a) Roofing and tar papers. (b) Imitation parchments and greaseproofs. (c) Oiled papers. (d) Special qualities prepared by soaking paper in a solution of shellac, with or without borax.

Wave Rule. Brass rule having a face like this: 

Waver Roller. An inking roller which distributes ink on a table or on other rollers by moving back and forth endways in addition to its rotary movement. On some styles of cylinder presses it is placed diagonally on the ink table, the action of the table giving the vibratory motion. A vibrating roller. See *Roller*.

Wax Engraving. A common method for making printing plates for maps, charts, diagrams, and other classes of work. It is less expensive than other methods of engraving, and may be done quickly.

A polished plate of copper, brass, zinc, or other metal is covered with a thin film of specially prepared wax, and upon this the design may be made either by photography, hand drawing, or transfer method. The engraving of the wax surface is done by sharp-pointed tools, a ruling machine, or, in the case of lettering, ordinary types are pressed into the warm wax, one letter at a time. In this manner the wax-covered plate becomes a mold, the blank spaces are "built up" in the same way as an electrotype wax mold, and it is then put in a copper bath and a copper shell is made by the same general procedure as with an ordinary electrotype.

Wayzgoose. An old-time printer's festival. It is described by Joseph Moxon (1683): "It is customary for all the journeymen to make every year new paper windows, whether the old will serve or not, because that day they make them the master printer gives them a wayzgoose; that is, he makes them a good feast, gives them money to spend at the ale-house or tavern at night; and to this feast they invite the corrector, founder, smith, joyner, and ink-maker, who all of them severally (except the corrector) open their purse-strings and all add their benevolence. These wayzgooses are always kept about Bartholomew-tide, and till the master printer have given this wayzgoose the journeymen do not use to work by candle light." Wayzgoose, literally, a young stubble goose, a dainty dish for a feast.

Web Press. A printing machine which is automatically supplied with paper from a great roll or web; usually a rotary machine, but there are flat-bed presses in which the same method of supplying paper is used. All modern large newspaper presses are web presses. See *Hoe Press*.

Wedding Papers. A term employed to denote a class of high-grade papers and cardboard, of heavy weight and medium smooth finish, used for wedding and social announcements.

Weight. That part of a type composition which is the most compact; that part which will carry the largest amount of ink.

Weight Font. A type font consisting of a workmanlike assortment of display or book letters, calculated to fill a full-sized California job case. Weight fonts are usually sold at a lower rate per pound than is charged for types in a job font. A *body font* of types is assorted for book work, put up in weights of 20 pounds or multiples thereof, with spaces and quads in weights of 5 pounds and multiples thereof. See *Font and Job Font*.

Weight of Type. Four square inches of types, composed solid, weigh approximately one pound. Thus, to find the weight of any given amount of type composition, find the number of square inches and divide by four. One pound of type (about four inches square) contains the following number of ems (solid) of the different sizes:

18-point.	64 ems	9-point.	256 ems
12-point.	144 ems	8-point.	324 ems
11-point.	170 ems	7-point.	423 ems
10-point.	207 ems	6-point.	576 ems

Wet-plate Negative. A piece of glass coated with a thin solution of albumen, covered with a negative collodion, which contains a delicate photographic image of silver salts on its surface. So called, because the plates can be used only while they are wet, or immediately after coming from the silver nitrate bath.

Wetter Numbering Machine. A popular style of typographic numbering machine invented by Joseph Wetter, of New York, for use on printing presses, to be "locked" in the form the same as type. It is made in several varieties and adapted to many uses for automatically numbering tickets, coupons, certificates, and other work, either by itself, or in connection with a type form. See *Typographic Numbering Machine*.

Wetting Down Paper. Within the past fifty years the practice of dampening paper before it is printed has been gradually abandoned in this country, although the practice is said to be still in vogue to some extent in Europe and elsewhere. The use of dampened paper was necessary in early days of printing because of crude methods and materials; type was not all cast of uniform height and it was used longer and worn more; presses were not made so powerful and make-ready was not done so carefully. Slightly dampened paper will take ink more readily than dry paper, and it does not require so much force to make the impression on the softened surface. The impression makes a thicker line, of course, and the impress will show strongly on the back of the sheet; but these were inevitable results because of the rudimentary methods employed. The dampening also takes the gloss off the surface of the paper, and although dry-pressing and hot-pressing would smooth out more or less of the roughness made by the impression, it is a tedious and expensive operation. Printing damp paper is a slow process, as the stock for a given job must first be wet down and allowed some time to dry. The development of power presses with their true and steady impressional motion, better inking apparatus, finer printing surfaces, and better finished paper, as well as greater skill and care in the preparation of tympan, have made wetting down an unnecessary operation for the great bulk of commercial and book printing. In newspaper work the dampening of paper is practiced to some extent, especially in places where old equipment and old-time methods are still in vogue. There are occasional instances, also, in which dampened paper is used for small editions of choice books printed in old-style fashion on hand-made paper.

Weather Signals, Wind Indicators. These are cast in type, for use in weather reports, etc. (The apprentice should study the type-foundry specimen books to become familiar with the numerous special signs and miscellaneous characters cast in type.)

Wf. The symbol for wrong-font letter in *proofreading*, which see.

Whip-stitching. When the leaves of a book have no fold at the back, they are sewed together in sections, the stitches on the back of each section being close together and extended from top to bottom. This is called whip-stitching. The sections are then sewed together like the sections of a book having folded leaves.

White Edges. A term applied to books which are simply cut, without being gilded or colored.

White-face Letters. Those which are made to show white on a dark background. See *Outline Letters*.

White Line. A line of quads; a blank line.

White-line Engraving. A cut or engraving in which the design appears in white lines on solid or dark ground. See *Reverse Plate*.

White Out. To open out, or put blank space between lines, when more than ordinary leads are required.

White Page. A blank page.

White Space. In printing, space unoccupied by type matter or illustration.

Whitlock Pony Press. This is a two-revolution press, especially designed for the most rapid production of the lighter classes of printing, including halftones in black and colors of fine quality. The Whitlock Pony is essentially a pony press—not merely a small size of a large-press series. It is a practical and economical machine. The press is now manufactured, in three sizes, by the Harris-Seybold-Potter Company, of Cleveland, Ohio.

Whole Fraction. One that is cast in one body complete, in distinction from a *piece-fraction*. See *Fractions*.

Wickersham Quoin. A small metal device for tightening up forms in a chase, etc. It consists of a metal box, 2 inches long, by $\frac{5}{8}$ inch deep, and $\frac{3}{4}$ inch in width when closed. The quoin is made of two pieces held together at the ends by small springs. Enclosed in the center of the box is a circular cam, fitted into grooves in the sides. An opening in the top of the quoin admits a square key which fits into a square hole in the cam. The turning of this cam extends the sides of the quoin, so that when placed between the side-stick or furniture and the enclosing chase, its expansion presses the whole mass together solidly. See *Morton Lockup*.

Wide Letter. A font of type in which the letters are wider than normal.

Wide Measure. Lines of type that are longer than normal, in relation to the size of type used; a length of line that would be normal for 12-point type would be wide measure for 6-point. Lines averaging over twelve words may be termed wide measure.

Wide Set. A letter is on a wide set when there is considerable space between adjacent letters. The extra space must be cast on the letter to be so called. This, however, does not mean interspaced.

Wide-spacing. More than normal space, or three-to-em, between words in a line. Good practice spaces solid and thin-ledged matter with the three-to-em and thinner; double-ledged matter and wide type faces require wider spaces. A safe general rule is that the average space between words in a line should be less than the white space between the lines of a paragraph. Very wide spacing is a defect in straight matter.

Window Envelope. A general name for an envelope which has an opening in its face through which the name and address may be seen. Also called *outlook* or *transo envelopes*.

Wing-Horton Mailer. A light-weight label-pasting newspaper mailer, made of wood, aluminum, and other metal. Its weight is about two pounds. The frame and all castings to hold the bearings and gears are in one piece, insuring strength and durability. A feature of the Wing-Horton Mailer is that the center of the handle for gripping the machine is exactly balanced, and this exact "hang," combined with the extreme lightness, makes it suitable for use with either left or right hand. It is made in sizes ranging from 1½ to 3½ inches, these being the widths of the labels the machine will accommodate. Briefly, the machines consist of a shell, on top of which is a wooden handle and a small wooden thumb-roll, which operates the sprocket wheels to the right of the frame. A web of printed paper labels is drawn from a reel in the rear of the machine shell, passing near the front over a wooden roller that runs in a box of liquid paste, and then under a feed roller which propels them to the edge of the shear or knife, which also automatically cuts the labels, one by one, from the web and pastes them onto the newspapers upon which the machine is held. See *Mailing Machine*.

Wired. When the sheets of a pamphlet are fastened with wire stitches or staples. This is done on wire-stitchers. See *Wire-stitching*.

Wire or Wire Screen. In speaking of paper-making, the screen upon which the pulp flows to be formed into a sheet.

Wire-mark. The faint mark left on paper by certain wires in the mold during manufacture, as in laid paper. See *Watermark*.

Wire Side. The side of a sheet of paper which rested on the wire during its manufacture; opposite to *felt side* (which see).

Wire-Stitcher. A machine for fastening the leaves of a pamphlet by means of small wire staples. The wire is supplied from a spool, and is guided into a channel in which it is cut into the required length and formed into a staple. This staple is made just beneath a piece of mechanism which, by the action of a foot-trip, drives the staple down through the sheets. After going through the sheets the two points

are bent toward each other and pressed flat against the under side. All the motions of the machine are automatic and it may be adjusted to stitch a thin pamphlet of a few sheets or a pamphlet three-quarters of an inch or more in thickness.

Wisconsin Quarter Case. A small case, size $7\frac{7}{8} \times 15\frac{1}{4}$ inches, made after various schemes, having from 12 to 36 boxes. It is used for signs, borders, accents, split fractions, figures, spaces, quads, etc., which are not usually kept in the standard-size case.

Woodburytype. A style of photogravure. See *Photogravure*.

Wood Base. A block of wood upon which an electro, zinc plate, or halftone plate is mounted type-high. Wood bases usually suffice for small plates for short runs, but for heavy plates and many impressions solid metal bases are preferred. See *Universal Base*.

Woodcut. An engraving on wood, or a print from such an engraving.

Wood Engraving. The art of cutting designs in relief upon a polished block of wood. A print made from a block of this kind. For good work boxwood is usually employed, and the engraving is done on the end of the grain. When the surface of the block is smoothed it is treated to a very light coating of chalk-wash, in order that the drawing or design may be held on it while the cutting is being done. The design may be drawn with a pencil, India ink, or transferred by photography. By means of fine tools, gravers, tint-tools, and chisels of different kinds, the white parts are cut away, leaving the design in raised dots or lines on the surface. Woodcuts will print well on all grades of paper, even with ordinary inks; they can be engraved finely to give soft and delicate effects, or they can be made in strong lines and masses of color. The lines being cut deep, there is less liability to fill up in printing, and electros can be made as good as the original. Electros are always advisable for woodcuts, the original being preserved for further plates or in case of accident to the printing form.

Woodcut Paper. A soft paper of fine fiber and smooth finish, lightly sized or unsized, which readily takes an impression of ink. Also termed plate paper.

Wood Pulp. Wood pulp is of two distinct classes, "mechanical" and "chemical." The mechanical or "ground wood" pulp is made by taking logs which have been sawed into convenient lengths, removing the bark, and feeding them into a machine where they are ground to atoms by contact with a rapidly revolving grindstone over which water is flowing. The pulp is then screened in order to eliminate splinters or chips, and is formed into sheets on a wet-press machine. This product is of low quality, as it contains all the resinous and gummy portions of the original wood, and the fibers are short and inflexible. The chemical pulp is made by chipping the logs and cooking the chips in large digestors with strong liquors at a high temperature. After a

sufficient time the digestors are emptied, and the pulp is washed, screened, and bleached, and formed into sheets by a machine closely resembling a paper machine. This process dissolves the resinous and gummy matters, and leaves the cellulose fibers in a practically pure state. These fibers are much better than the "ground wood," as they are freed from substances which soon decay, and are longer, stronger, and more flexible. There are several different kinds of chemical wood pulps, varying in character according to the kinds of wood used and the processes of cooking employed. The two most common are known as "soda pulp" and "sulphite pulp." Mechanical pulp and chemical pulp are often used together, the quality of paper depending on the proportion of low grade and better pulp; chemical pulp is also mixed with rag pulp for better grades of paper.

Wood Pulp Board. Coarse, stiff card made from wood pulp, used for making boxes, cheap book covers, etc.

Wood Type. Large types, such as are used for posters and large bills, are made of wood. The smallest size for practical use is 24-point, or 2-line pica, and are so named, as 8-line, 10-line, 15-line, etc. They are much cheaper than metal types, though not as durable or satisfactory for printing. The wood commonly used is maple and the letter is made on the end of the grain. It must be well seasoned and polished. The manner of cutting the letter is by routing away the blank parts with a small rapidly revolving cutter. The strip of wood, cut to the height of the size required and planed type-high, is placed in a machine equipped with a pantograph apparatus. A pattern letter is put in place, and over this a guide point is moved; another part of the machine has the revolving cutting tool; as the guide point is moved over the pattern, its motions are duplicated by the block under the cutter, which cuts away the wood. When the letters on a block are thus routed out, they are sawed apart, the finishing touches given, and the letters oiled. Pine and other soft woods are used for very large sizes of wood type and poster cuts.

Wood Furniture. Pieces of wood of various sizes, for fitting around forms, between pages, etc.

Wood Rule, Border, etc. Large sizes of rules, borders, ornaments, and similar material, are made of wood for posters, large cards, etc. Same as wood type.

Work-and-turn. When all the pages on a sheet are imposed on one form, the paper is turned and printed on the second side, making two copies when cut. See *Half Sheet, Sheetwise*.

Worked Off. When the required amount of sheets have been printed the form is said to be worked off.

Workers. The set of electros used for printing a work, in distinction from the pattern plates or molders—those held in reserve for molding duplicates, or for other use.

Wove Paper. Paper made on a mold in which the wires are woven together like the threads of ordinary cloth, and which does not show distinct wire-marks, as on laid paper. Most paper is now made on this kind of a mold, especially paper used in printing, as the wire-marks of laid paper are liable to show in printing solid or flat surfaces. See *Laid Paper*.

Wrapping Paper. A coarse paper made of burlap, ground wood, old magazines, or other waste materials.

Writings. General term for writing paper of all grades. The cheaper grades are made mostly of wood pulp, the better grades from cotton rags, and the finest from linen rags. Writing papers are sized, and they do not take printing ink as readily as unsized book or print paper; they require a stiffer, stronger ink and more impression.

Wrong Font. A wrong letter or character in a line, caused by mixing fonts of type; in proof, written wf.

X-ray Photography. The process of making photographs with x-rays. Such photographs are extensively used by the medical and dental profession in diagnostic and research work. A halftone made by this method is called a *radiograph* halftone and this differs from an ordinary photographic halftone in that it shows only a shadow of the image or subject.

Xylograph. An engraving or printing surface produced on wood; also a print made from a wood-engraving.

Xylography. The art or process of engraving on wood.

Yankee Job Case. A style of standard-size job case in which there is room for the capitals, lower-case letters, figures, points, etc. See *Case*.

Yankee Job Stick. A style of compositor's stick in common use. The movable knee is held to the back-plate by a small steel clamp and a thumbscrew. Its popularity for jobbing is largely due to the ease with which it can be changed from one measure to another. The sticks in use before its advent required a screwdriver or similar tool to fasten or to unloosen the movable knee. See *Composing Stick*.

Ye. (*pron.* the) The y in this old-time word and also in ym, yn, ys, is a corrupt representation of the Anglo-Saxon D, or *th*, introduced at the time when the Anglo-Saxon alphabet was superseded by the Old English or black-letter, in which **y** (y) bore a considerable resemblance in form to **y**.

Year Book. A book or pamphlet published once a year, in which a record of events, statistics, and other information relating to some work or subject is put into convenient form for reference. Also called *Annual*.

Zinc Etching. A relief printing plate made on zinc by photo-chemical operations. See *Process Engraving*.

Zinc Halftone. The cheaper, coarse-screen halftones, such as are used by newspapers, are etched on zinc instead of copper, the latter being used for finer work. See *Halftone*.

Zinc Galleys. Those with zinc bottoms; now little used except for mail lists and other standing matter. Brass is now commonly used.

Zincograph. An etching on zinc.

Zinc Overlay. See *Overlay*.

Zincography. The photo-mechanical process of putting designs on zinc plates for use in letterpress or lithographic printing, and the operations necessary for producing impressions from such plates. See *Halftone* and *Lithography*.

MEMORANDA

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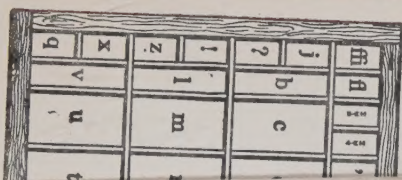
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Jahn, Hugo,

The dictionary of graphic
arts terms



The RADIO ROOM



LAY

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1017

Jahn, Hugo

Dictionary of the graphic arts
terms.

PHILIP SCHUYLER HIGH SCHOOL

ALBANY, N. Y.

THE LIBRARY

This library is open to all teachers and pupils in the Public School System. Arrangements may be made with the Librarian for special privileges for Teachers.

Each pupil in the High School is allowed two books, one of which may be fiction.

Books may be kept one week unless it is otherwise stated.

A fine of two cents for each school day will be charged for a book kept overtime.

Careful usage is expected and injuries and losses must be paid for by the borrower.

